LIBRARY A.B.C.F.M.

DECEMBER, 1899

VOL. XIV. No. 6.

The Geographical Journal

INCLUDING THE PROCEEDINGS OF THE ROYAL GEOGRAPHICAL SOCIETY.

SUMMARY OF CONTENTS.

(For Details, see over.)

	PAGE
Opening Address, Session 1899-1900. By the PRESIDENT	593
Travels in Bokhara. By WILLY RICKMER RICKMERS	596
New Light on some Mediæval Maps. By C. RAYMOND BEAZLEY, M.A.	620
Regions of the Benue. By LIEUT. H. MOSELEY	630
Mr. Jenner's Expedition from Kismayu to Logh, on the Juba	637
Recent Journey from Shanghai to Bhamo through Hunan. By Captain A. M. S. WINGATE	639
International Oceanographical Research	646
Bartholomew's Physical Atlas.—A Review. By HUGH ROBERT MILL, D.Sc., F.R. Met. Soc.	649
Three Recent Books on China.—Review. By GEO. G. CHISHOLM, M.A., B.Sc.	652
'The International Geography.'—Review. By Major L. DARWIN	656
The Monthly Record	658
Correspondence	672
Meetings of the Royal Geographical Society, Session 1899-1900	673
Geographical Literature of the Month	674
New Maps	691
Maps and Illustrations.	

TITLE-PAGE, CONTENTS, INDEX, ETC., TO VOL. XIV.

PUBLISHED UNDER THE AUTHORITY OF THE COUNCIL.
EDITED BY THE SECRETARY.

LONDON:
THE ROYAL GEOGRAPHICAL SOCIETY, 1, SAVILE ROW;
EDWARD STANFORD, 26 AND 27, COCKSPUR STREET, CHARING CROSS, S.W.

PUBLISHED MONTHLY.] [To Non-Fellows, Price 2s.

For Notices as to the Society's Meetings and other important matters, see p. iv.

H. SOTHERAN & CO.,

Booksellers, Bookbinders & Publishers.

GENERAL AGENTS FOR PRIVATE BOOKBUYERS & PUBLIC INSTITUTIONS

In India, the Colonies, America, and Abroad

A MONTHLY CATALOGUE of SECOND-HAND BOOKS: Specimen No. post free.

LIBRARIES PURCHASED OR VALUED, AND ARRANGED AND CATALOGUED.

Telegraphic Address: BOOKMEN, LONDON. Codes: UNICODE and A.B.C.

140, STRAND, W.C., & 37, PICCADILLY, W.

EXPLORING EXPEDITIONS *Completely Equipped by*

S. W. SILVER & CO.

AND

BENJN. EDGINGTON, LTD.

"BEFORE GOING ABROAD, I would recommend Travellers, who desire to spare themselves trouble, as well as time, to consult with Messrs. SILVER & CO., of Cornhill. This firm has supplied travellers, including myself, with their outfit, and know exactly what is needed for every part of the Globe."—*Extract from "Notes on Outfit," by* Sir H. H. JOHNSTON, *late H.M. Commissioner for CENTRAL AFRICA.*

BENJAMIN EDGINGTON'S Tents and Camp Equipments for Africa, &c.

Made from a Special Canvas, treated by the Copper Rot-Proof Process.

"After four years in East Central Africa, I have no hesitation in saying that, as far as my experience and observation go, your tents are the best that can be procured.

"I have seen other tents, when almost new, torn to pieces after a tropic storm, or giving way after one rainy season, while one of your **double-roof tents** which I used constantly for **two years** in Central Africa, is still as strong and sound as ever.

"Yours faithfully,

"R. U. MOFFAT, M.B.,

"Medical Officer, Uganda Protectorate."

Illustrated Catalogues and Particulars on Application to

S. W. SILVER & CO. & BENJN. EDGINGTON, LTD.,

67, CORNHILL, and 2, DUKE ST., LONDON BRIDGE, LONDON.

THE TRAVELLER'S WATCH.

THIS WATCH HAS BEEN SUPPLIED TO MEMBERS OF THE ROYAL GEOGRAPHICAL SOCIETY.

BENSON'S SPECIAL STRENGTH "FIELD" WATCH.

In massive 18-ct. Gold Cases, £35. In Silver Cases, £21.

Best London make; Half-Chronometer movement; pivoted on rubies and diamonds; strong and safe Keyless work; fine Chronometer Balance; Breguet Balance Spring.

As a high-class, strictly accurate, and reliable Watch, it is unsurpassed for Explorers, Travellers, and Officers on Foreign Service.

In extra strong close-fitting Cases, Hunting, Half-Hunting, or crystal-glass, engine-turned or polished, 18-*ct. gold,* **£35**; *or silver,* **£21.**

Sent to any part of the World on receipt of drafts (postage and insurance paid by us).

Illustrated Book of Watches, Chronometers, Chronographs, Clocks, and Jewellery sent post free.

J. W. BENSON, LTD., Steam Factory: 62 & 64, Ludgate Hill, E.C.

AND AT 28, ROYAL EXCHANGE, E.C., AND 25, OLD BOND STREET, LONDON, W.

The
Geographical Journal.

No. 6. DECEMBER, 1899. Vol. XIV.

OPENING ADDRESS, SESSION 1899–1900.*

By the PRESIDENT.

Our geographical work, in its different departments, has actively progressed, both in the study and in the field, since the end of our last session; while several important steps have been taken for its advancement.

Our most prominent measure has been one of renunciation. I have resigned the post I have held for the last five years, since 1894, of President of the International Geographical Congress, into the hands of my friend and colleague, Baron Richthofen; and the secretaries have delivered their final report to their successors at Berlin. Dr. Keltie and Dr. Mill well deserve the thanks of all geographers for the zeal and ability with which they have conducted the work of the Congress while it was in our care, from the early part of 1894 until October, 1899. We were received at Berlin with a most hearty and cordial welcome, and the meeting was a great success. Largely assisted by the Government and by the city of Berlin, and furnished with a magnificent building rent-free, the Seventh Congress had advantages which we did not possess, and consequently the officials of the Congress, being better supplied with funds, will certainly be better able to conduct the business, and especially to carry out the resolutions that have been passed.

Turning from these international duties to more domestic concerns, I feel sure that the Fellows will be glad to hear that the School of Geography at Oxford has been established, and is now in working order. It is regulated by a joint committee, consisting of four members of the University and three members of our Council. A lecture-room and

* Read at the Royal Geographical Society, November 13, 1899.

laboratory have been fitted up for it in the old Ashmolean Museum; there is an efficient staff under the direction of Mr. Mackinder, and the course of instruction has commenced this term. We may expect, with some confidence, that there will eventually be valuable results from this joint action on the part of the University and of our Council, for the promotion of geographical education.

The subject catalogue is in an advanced state, and the work of the nomenclature committee is progressing.

Dr. Mill's investigation of the geography of southern Sussex, in connection with the Ordnance map, is practically completed, and we hope to publish it soon as a sample of what might be done with the aid of the Ordnance maps, in working out the detailed geography of our native land, and indicating the influence which it has exerted on the country's history, on distribution of population, on agricultural, industrial, and commercial development. Dr. Mill has also brought out, during the recess, his 'International Geography,' which is certainly the best text-book in the language, and equal to anything produced in Germany.

I must briefly refer to another enterprise, likely to be of great service to geography, to which the Society has given its patronage. I allude to the great physical atlas in several volumes, which Mr. Bartholomew has had in preparation for years, with the assistance of many specialists, and the first volume of which is just issued. Mr. Bartholomew deserves the highest credit for such enterprise, involving a great outlay, and placing this country on a level, at least, with the best work of the kind in Germany or elsewhere.

A fine new large-scale map of Siam is in an advanced state of preparation, and will probably be published next year, with the financial aid of the Siamese Government, accompanied by a detailed memoir by Mr. James McCarthy, to whose many years' labour as Government surveyor the work is due.

We must, I think, all welcome the result of the arbitration on the Venezuelan boundary, because it so fully proves the correctness of the view taken in our *Journal* when the aggression of the Venezuelans made the question a serious one in 1896. The Schomburgk line, dividing British Guiana from Venezuela, is declared to be the correct one. Sir Robert Schomburgk, it will be remembered, was one of our Gold Medallists. His journeys were undertaken with the aid of grants made by our Council, and we have reason to be proud of the learning, judgment, local knowledge, and regard for justice which enabled our associate to delimit a difficult boundary in a way that has won the unanimous assent of the arbitrators.

I have invited M. de Gerlache, the commander of the Belgian Antarctic Expedition, to come to this country and give us an account of his voyage. Our own strenuous efforts to secure the equipment and

despatch of an antarctic expedition on an adequate scale have been rewarded. Thanks to the subscriptions of the Council and Fellows of this Society, above all to the munificence of our associate, Mr. Longstaff, the Government has consented to double the Antarctic Fund, thus raising it to £90,000; provided that we can, from other sources, succeed in raising another £5000. In his answer to our deputation, Mr. Balfour made a most enlightened and appreciative speech, worthy of the best days of educated statesmanship. It reminded me of the times when we had such men as the first Earl of Ellesmere among us. No one, before or since, has taken a greater interest in polar, and especially in antarctic, exploration. Unfortunately, most of Lord Ellesmere's valuable geographical work lies buried in anonymous articles in the *Quarterly Review*. I feel a great veneration for the memory of the most accomplished of our former Presidents, because it was his encouragement which first turned my thoughts seriously to geographical studies, and more especially to the antarctic regions. He used to refer to Ross and Weddell, to Franklin and Parry, as the "Nelsons of Discovery," most justly giving them a place beside those heroes for whose martial deeds he felt such deep admiration. He used to say that death in the cause of science and death on the battle-field were both most noble.

I cannot refrain from referring to the recent death of our former President's grandson at Ladysmith. My young friend, Frederick Greville Egerton, the gunnery lieutenant of the *Powerful*, fell mortally wounded just as he was helping in the performance of a great public service. He fell fighting for his country in a most just and most righteous cause, and his country mourns his loss. It was a death which his grandfather, in common with all true Englishmen, held to be most noble. These are indeed very anxious times, and it is hard to turn our attention away, even for an hour, from the place where many dear friends are fighting so heroically against such heavy odds. We have just received Captain Wellby's paper on his great journey from Abyssinia to Khartum. He himself has joined the 18th Hussars at Ladysmith, and all his friends watch anxiously for good news of him. We shall keep the paper back until he can return to read it himself, when he will receive such a welcome as these four walls have seldom witnessed. Our best geographers are ever to the front when their country needs their services.

We have received other valuable work from Africa since the close of the last session. Mr. Mackinder has reached the summit of Mount Kenya, and has returned to his useful labours at Oxford, after performing what I consider to be a model exploring journey. Mr. Codrington has, in accordance with the wishes of our Council, conveyed through Mr. Sharpe, visited the famous Livingstone tree near Chitambo's. He found it rotting away, but was in time to save a slab, with the inscription, which he will transmit to this country. He has established marks

to fix the place, preparatory to the erection of a permanent memorial to the great traveller, which is in contemplation. Mr. Weatherley, who was the first to send us leaves from the tree, has communicated an interesting account of his more recent travels. We also expect a paper on his travels in Abyssinia from Mr. Weld Blundell.

Nor have our travellers been less active in Asia; and it seems to me that their work strikingly shows us how many limited but exceedingly interesting tracts still remain for young geographical aspirants to explore. Captain Deasy is on his way home after having examined and surveyed a previously unknown part of the course of the river Yarkand. Captain Wingate has sent us some account of his remarkable journey through China to Bhamo; and I have the great pleasure of introducing to you this evening Mr. W. R. Rickmers, who will describe to you his travels in Bokhara.

TRAVELS IN BOKHARA.*

By WILLY RICKMER RICKMERS.

A JOURNEY made three years ago in the eastern provinces of Bokhara induced me to revisit the country. Accordingly in the summer of 1898 I started, accompanied by my wife and Dr. v. Krafft, now of the Geological Survey of India.†

I take this opportunity of thanking the Imperial Government of Russia and its representatives in Bokhara for the facilities afforded me in travelling through the Khanate.‡

An officer of His Royal Highness the Amir accompanied us as guide, his duty being to see that fitting accommodation for ourselves and our horses was provided at the various halting-places on the route. The presence with us of this official was tantamount to a letter of safe-conduct, and assured for us a friendly and courteous reception at the hands of the native officials, with whom we came in contact. As he always sent a messenger in advance to announce our arrival at any station where we intended putting up, we found ample preparations made for our reception. As we approached our destination we were usually met by a crowd of gaily dressed officials, whose white turbans,

---

* Read at the Royal Geographical Society, November 13, 1899. Map and diagrams p. 696.

† My chief aim was the investigation of certain parts of the province of Baldjuan, which had been neglected by previous travellers.

‡ For permission to visit Bokhara I am indebted to the kindness of the late General Annenkoff, whose encouragement of foreign travel in Transcaspia will make his death a great loss to those who, like myself, have had personal experience of his influence in smoothing away the difficulties under which the foreign traveller in these regions must labour. To the political agent, Mr. Ignatieff, and his secretary, Mr. Miller, I likewise tender my hearty thanks for the unfailing courtesy they showed me, and for the trouble they took in arranging for our comfort during our journey through the country.

brilliant garments, and richly caparisoned steeds recalled some scene out of the 'Arabian Nights.' These, saluting us with true Oriental dignity, escorted us to their houses, where we found provision made for our comfort according to the Bokhariot's idea of a European standard. Thus, though dispensing with tables and chairs himself, he always provides these articles for his guests. Being of native manufacture, they present some truly remarkable features. In very few cases do tables and chairs correspond, and the legs of both are of most uncertain height and stability. If the table is raised some two feet above the ground, the chair generally towers some two feet above that, while if the table is an ordinary size, the chairs are frequently several feet below it. As

BALGNAN.

regards hospitality, the Bokhariot upholds the traditions of Oriental lavishness. The tables literally groaned under the weight of fruits and sweets of every variety. Soup, fowl, and mutton, with rice, the national fare, formed the more substantial part of the repasts, which never varied. In spite of its monotony, this diet did not pall upon us so much as might be expected. The fresh air and constant exercise probably whetted our appetite, in consequence of which we were less fastidious.

As regards our quarters, they were uniformly the best the place offered. The native bedstead, with its mattress of woven rope, can be made a most comfortable resting-place if well covered with wadded quilts and rugs. In the deliciously cool nights of early summer, the

traveller can with safety sleep outside, the dryness of the atmosphere doing away with all danger of chill, while mosquitoes scarcely exist, save in certain localities, and noxious animals are unknown. In autumn the difference of temperature between night and day is too great to admit of sleeping outside, and one has to make the best of the native dwellings. Air is generally to be had in abundance, as the doors seldom fit, and cracks and crannies in the wall provide sporadic ventilation in unexpected quarters. These same crannies afford a hiding-place for certain minute insects, which have a knack of making their presence felt while they themselves manage to remain invisible.

Beyond these minor discomforts, there is little to deter a traveller who enjoys sound health from making a similar journey. Of attacks from the natives there is absolutely no danger. The people are quiet, too much in awe of their rulers to make themselves aggressively disagreeable; and are effusively polite when it is to their interest to be so. That it is possible not merely to travel, but to enjoy the private hospitality of the natives in this interesting country, speaks volumes for the mighty change which has taken place in it since the days when no European dare venture in safety within its borders save, like Vambéry, under cover of a perilous disguise.

Our little caravan, consisting of some twelve horses, left the famous old Mohammedan metropolis on June 27. The first part of our journey, as far as Karshi, lay along the well-known trade route to the south. Soon after leaving the Russian town of New Bokhara one enters a region of sand-dunes, which, alternating with stretches of steppe, continues as far as Kwaja-Mubarak. There it gives place to partly cultivated steppe until Kazan is reached, where begins the luxuriant belt of gardens surrounding Karshi.

The contrast between this fertile oasis, in which groves of mulberry, apricot, and apple trees refresh the eye, and the dreary desert of the first two days' march can be more easily imagined than described. The traveller in these desolate regions is, however, not without provision for his safety by the way. At Karaul, the first station reached after leaving Bokhara, there is a fine reservoir covered with a large cupola of brickwork. Close by, the ruins of an imposing caravanserai recall the efforts of former rulers to mitigate the dangers of desert travel. These and similar remains elsewhere along the road are ascribed to Abdullah Khan, an Amir of Bokhara during the sixteenth century, and one of the few historic names still lingering in the native memory as associated with the past greatness of the country.

Karshi, the first town at which we halted, boasts a certain antiquity, and, though far inferior to Bokhara in point of interest, exhibits in its bazaar-life similar features to that of the capital. Its beautiful gardens with their rich foliage add a charm to the place which Bokhara has not in the same degree. From the roofs the town appears embosomed in trees.

At Guzar, some 30 miles beyond Karshi, we leave the great Transcaspian plain and reach the first low spurs of that vast expanse of mountains which continues without a break to the great plain of Northern India.

Our approach to higher ground did not bring us that relief from the heat for which we had hoped. The vegetation of the hills at this season is parched and dried up, and the rocky walls of the valleys beat back with redoubled vehemence the fierce glare of the sun. The prominent feature of this belt of outlying hills is the loess. This geological formation dominates the landscape as far as the high alpine regions. Its varied aspects, deep chasms, and steep banks constitute

THE YAKH-SU VALLEY AND CONGLOMERATE MOUNTAINS, FROM THE PASS BETWEEN KHOVALIN AND SARIPUL.

a characteristic scenery of their own. A sea of slippery yellow mud in rain, the source of volumes of impalpable dust in dry weather, it makes itself but too familiar with the clothes, eyes, ears, and mouth of the traveller.

Here and there rocky crests rise out of the undulating loess. Through one of these lies the famous defile known as the Iron Gate, and mentioned by the early Chinese traveller Hiuen-Tsang (about A.D. 630). This remarkable sandstone gorge, which cleaves the mountain from summit to base, is about a mile long, and at times only a few paces in width. Its mighty cliffs, hewn and carved in bizarre fashion, tower in places to a height of 600 feet, and are rendered the more

impressive and picturesque by reason of the windings of the gorge. In the winter a stream flows through the chasm, which is then impassable, and the travellers circumvent it by a path over the mountain.

Passing through Darbend and Baisun, we descended into the swampy valley of the Surkhan, which we followed as far as Karatagh. Here we stayed a few days to give the horses rest.

Karatagh, which lies on the banks of a rushing river at the point where it leaves the Hazrat Sultan mountains, is the summer residence of the Kush-Begi of Hissar, the most important dignitary of the Khanate after the prime minister of Bokhara. He is the governor of the entire eastern half of the Ameer's dominions, and invested with great privileges, having power over life and death. During the winter he lives at the ancient capital of Hissar. At the approach of the warm season, when malaria and mosquitoes render the place almost uninhabitable, he migrates with his goods and chattels and a great part of the population to Karatagh. This biennial exodus almost clears the town, for everybody from the highest official down to the meanest prisoner in the jail follows his master. Not only does the Kush-Begi move all his valuables from one capital to the other, even the lumbering cannon, of which he can muster two or three specimens, are dragged in the train of the hundreds of camels employed for the removal of his household. Many of the animals literally groan under the weight of the bags filled with the hard cash which forms no inconsiderable part of his treasures, while others have the lighter burden assigned them of carrying the numerous inmates of his harem.

While at Karatagh we made an excursion to the Timur-Dera-Kul, a small lake to the north of the town at a height of 8000 feet. We followed the valley of the Karatagh river, which winds through magnificent scenery, precipitous mountains hemming it in in parts. Vegetation, though scarce, was never entirely absent. A species of briony twined itself round the gigantic boulders strewing the river's edge, while willow and mulberry trees frequently occurred. At the village of Khaki-mi we stopped for the night, our quarters being the portico of a mosque, the only shelter available. The scene was a very fine one, the pillars of the mosque serving as a frame to the mountains which towered aloft in front of us, the moonlight turning their snow-crowned summits to sheeted silver.

From Khaki-mi on the following day we rode on to the Timur-Dera-Kul. Here Nature was more prodigal with her gifts than in the parts we had hitherto visited. Round the water the walnut, the mulberry, and the willow abounded, with flowers of every hue and variety akin to many European species. The water is of the most exquisite bluish-green tint.

The lake lies north-east by south-west, and is fed by two streams—the Yangi-lik on the east, and the Ak-tash on the west. The dam at

its lower end is an old moraine, and the overflow produces a pretty cascade. It was in this neighbourhood that we saw the nearest approach to a forest during the whole of our sojourn in Bokhara, for the natives with their primitive tools play havoc with any trees within reach, ruthlessly destroying as many as two or three of them in the attempt to obtain a single plank. Here and there shading their court-yards are to be found venerable trees, generally planes; but these are exceptions, the country as a whole being remarkably bare of the more stately representatives of the vegetable kingdom.

From Karatagh we had each day to struggle over some rugged mountain pass, and we successively crossed the valleys of the Kafirnighan,

A SIDE VALLEY OF THE YAKH-SU.

the Vaksh, and the Kizil-Su. Bridges in this country are few and far between, and the Amir's highway is often deflected for a day's journey owing to their scarcity. Most of these structures, constructed on a primitive form of the cantilever principle, are unable to resist the onrush of the spring floods, and have to be built anew each year. A notable exception is the bridge over the Vaksh. Between Norak, famous for its salt-mines, and Tut-Kaul this river runs through an extremely narrow valley. Here the path skirts the rim of precipices, over which a single false step on the part of the horse would suffice to fling him and his rider into the turbulent waters below.

At the spot where this river, equal in volume to the Thames at Kew,

is pent into a rocky channel 8 feet wide, the native engineers have seen their opportunities. A few beams are sufficient to span the cleft, while a thick hedge of interwoven branches screens the giddy depths from the traveller's eyes. A gate on the bridge marks the frontier between the provinces of Hissar and Baljuan. In ancient times, when constant wars were waged among the minor states, many an expedition must have been frustrated at this point.

Another remarkable phenomenon in the Vaksh valley is to be seen just above Tut-Kaul, on the right bank of the river. This is an embankment of solid rock formed by the outcropping surface of a stratum of limestone. It runs in a perfectly straight line for a distance of several hundred feet, and such is its smoothness and regularity that it looks as if human art had devised it to confine the stream. A few hundred feet vertically above it a deep groove runs along the face of the mountain, marking a former level of the river. It may be termed a classically perfect example of this kind of geological record.

Baljuan, the capital of the province of the same name, was the last town of any pretensions which we passed before we arrived at our destination. It is picturesquely situated on the high banks of the Kizil-Su, the palace of the governor commanding a fine position on the summit of a loess cliff. On market days the population overflows into the river-bed, a vast stony plain reduced to an almost dry state during the summer.

Here, in contrast to the flat mud housetops prevailing in other parts of Bokhara, we have sloping roofs thatched with reeds. The town possesses a native garrison, which entertains the populace with martial music and military evolutions every morning and evening. Their appearance in a garb which strives to imitate Russian military costume has something of the ludicrous about it. It is one of the many illustrations of perversion of taste which contact with Western civilization so often produces in the Oriental. Of a piece with this is the red cotton with which rooms prepared for the reception of Europeans are frequently covered in place of carpets.

Crossing a watershed into the valley of the Yakh-Su, we bade farewell to the regions of sand, steppe, and loess, and entered the sub-alpine level. From the summit of the pass between Khovaling and Saripul we had our first view of that wonderful mountain system of the "conglomerates" of East Bokhara.*

* This region has rarely been visited, and I have not been able to find more than a passing remark on the Yakh-Su valley. The reason for this is that the eastern provinces of Bokhara have only in comparatively recent times received the attention of explorers.

The early reports of Hiuen-Tsang and of the Buddhist monk Syan-Dzan down to those of Forsyth and Trotter were chiefly based on second-hand information. Then began the great activity in the countries west of the Pamir, and associated with the

Ascending the Yakh-Su valley, we established our headquarters on one of its tributaries—the Safet-Darya (White river), which joins the Yakh-Su just below the village of Talbar, marked on the Russian map, and mentioned by Regel.

The conglomerates cover an area of about 800 square miles, disposed in a long strip between the rivers Vaksh and Panj, with a strike from north-east to south-west. They show distinct stratification. Dr. v. Krafft ascribes them to the tertiary period.* The stones composing them are chiefly crystalline. The greatest thickness of the formation may be said to be at least 4000 feet. The rounded forms of the soft conglomerate are easily distinguishable from the jagged and fantastic outlines of the hard zone. The highest peaks typical of each category are respectively Hazrat-Ishan (13,000 feet) and Kuch-Manor (10,500 feet). Both of these were constantly visible from our quarters in the Russian colony of Safet Daria. The scenery is wild and weird to the last degree. An intense solitude pervades the valleys, where Nature is so sparing that scarcely a living creature is to be seen. Serrated ridges and gaunt pinnacles stand out black against the blue sky.

In this district we spent several months. By the time we arrived the vegetation had quite dried up. As we climbed the slopes, the crackling skeletons of umbelliferous giants punished our intrusion with

---

names of Oshanin, Severtsoff, Regel, Fedshenko, Ivanoff, Pokotslo, Yonoff, and others. Many of the results obtained by these travellers are recorded in Mr. Rob. Michell's paper (*Proceedings*, 1884), and in Mr. Delmar Morgan's able *résumé* on the recent geography of Central Asia (*Supplementary Papers*, 1885).

The first who actually visited this district was the Russian botanist, Dr. Regel (1882). A translation of his letter from Kala-i-Khumb is to be found in the *Proceedings* of 1882. In the following year he visited Shugnan, accompanied by Kossiakoff (*Proceedings*, 1886). From his original report I gather that he journeyed through the valley of the Yakh-Su, and this is corroborated by the map showing his route (*Proceedings*, 1884). All the other travellers whose reports I have read have avoided this valley.

The best map is that of the Russian General Staff, which gives a fairly accurate idea of the topography of these parts, and on which the river is called Yakh-Su. All previous maps have Ak-Su. There is no other information beyond that conveyed by Regel's account and the various maps. The peculiar and remarkable features of this region seem to have escaped observation.

To those who consult the maps in the Society's publications a few hints may be useful. On the map of Pamir (*Proceedings*, 1884) Saripol is easily found; Khovaling is called Khalaling. On the map illustrating Kossiakoff's route (*Proceedings*, 1886) the name Shignan occurs just below that of Talvar (Talbar). The little river immediately to the south of Shignan is the Safet-Darya. Shugnan (as the latest Russian spellings has it) is a subdivision of the district of Talbar, and must not be confused with the province of Shugnan; it is not a single village, but the collective name for a number of settlements. The same map has Tavaling (instead of Khovaling) placed to the right of the spot where the Ak-Su begins to be represented by a dotted line.

* Dr. v. Krafft will give the results of his geological investigations in the forthcoming publication of the Vienna Academy of Sciences.

showers of dust. Only where there is a constant trickle of water green patches may be seen throughout the summer. In the higher regions, of course, the meadows remain green a long time. Trees are scarce, but in the more secluded valleys apologies for woods manage to exist, to the great delight of the lover of nature. The pine is represented by the thuya, which thrives on scanty soil, and is satisfied with a precarious foothold on the brow of precipices, safe from the ravages of man.

The Yakh-Su valley is the home of majestic walnut trees. With their gnarled stems and spreading foliage they are the pride of the

BUY DASHT, ON THE SAFET-DARYA.

hillside. Unfortunately, some years ago an Armenian vandal destroyed many thousands of them for the sake of their grained knots.

As to the animal world, I only observed two wild mammals—marmots and a species of mountain sheep. I once stalked and wounded one of the latter, but it got away among the inextricable maze of gullies and ledges. I believe it was *Ovis arkhal*. The habits of the marmots are instructive from the point of view of animal economy. The beginning of their hibernation is determined by two different factors, the dry season and the cold season. Around the Russian village, at a height of 6000 feet, their piping is continually heard in spring, but they do not show themselves any more at the entrances of their subterranean abodes after the middle of August. Two thousand feet higher their food is green much longer, and there they do not retire before the

beginning of September. At an altitude of about 10,000 feet only the cold will send them to sleep, because the water trickling from the patches of snow keeps little kitchen gardens going for them.

The same causes influence the migration of wild and domestic sheep. In September I was unable to discover any arkhal about Kuch-Manor, where they usually abounded. They would be found around Hazrat Ishan if it were not for the shepherds, who infest this mountain with their flocks, gradually going higher and higher until everything is eaten up. Then the large herds of fat tailed sheep are driven downwards from all directions, and caravans of thousands of them throng the narrow paths. Their winter quarters are the irrigated lowlands

THE RUSSIAN COLONY OF SAFET-DARYA.

of the Amu-Darya, where food is found all the year round. Thus the sheep are always on the move, and the natives only keep a small stock in their villages for immediate wants.

There is one glorious pasture, however, which is safe from the cattle of man. The mountain immediately to the west of Kuch-Manor has a flat top offering an undulating surface of about half a square mile, which is conspicuous from Safet-Darya, and which changes its colour from green to brown as the months succeed each other.

When Dr. v. Krafft and myself reached the top of Kuch-Manor after some unsuccessful attempts, we also passed over this secluded paradise, which the natives have never been able to enter. Towards

all sides steep rocks descend from it, and the marmots that stare at you till you might almost seize them, and the broad tracks traced out by the hoofs of mountain sheep, show that here the wild animals feel secure, amid an abundance reserved for their exclusive use.

They are to be envied when compared to the ragged and wretched human population of the valleys below, which raises an uncertain crop of corn on the mountain slopes, and is mainly dependent for its livelihood on the gold-washing industry.

The precious metal has been obtained from this region for centuries, as is shown by the old heaps of tailings at higher levels than those frequented by the present natives, who only work near the water. Legend associates these traces of old workings with Chingiz Khan, whose name is as proverbial in Central Asia as that of Queen Tamara in the Caucasus. The apparatus for treating the gravel is very simple. A series of strips of felt are laid on a sand incline, at the top of which is placed a grating of wood. Upon this grating a shovel full of gravel is thrown and water poured over it. The fine material is washed down and the gold caught by the felt. All gold in the shape of dust is lost, some of the rougher particles only being secured. By this process not more than about a ton of gravel is treated per day. Groups of about five men work together. Two dig out the material, one carries it to the water, and two attend to the washing. These men are all in the hands of sweaters, who advance them the necessaries of life at extortionate interest, and keep them continually in their clutches. Consequently they never are able to attain comparative prosperity, and do as little work as they can.

The yearly gold output of East Bokhara is variously estimated at from £20,000 to £30,000, a mere trifle considering the potentialities of the alluvial deposits. The quantities extracted by the natives in the course of centuries have hardly encroached upon the store, and they are as nothing compared to what Europeans might produce here in a few years. So far the proportion of gold in the conglomerate itself has not yet been established, the fluviatile deposits resulting from its disintegration offering greater advantages for mining purposes. The original birthplace of the gold is of course to be sought for in the surrounding crystalline ranges forming the banks against which the conglomerates were deposited. The gold occurs exclusively in tablet form, grains and nuggets being nowhere found. The largest piece we ever saw weighed about half an ounce; it is 92·7 per cent. fine. We have made extensive investigations into the distribution of the metal, and I here give some of the results. Two facts of general experience were at once apparent: the richness of the sands increased with the depth, and the gravel terraces on the banks were richer and contained coarser gold than the actual river-bed.

The alluvial deposits are clearly stratified, and the corresponding

layers can be more or less easily identified at distant spots. The top layer is about 6 feet thick, and contains on an average 8 grains of gold to a ton of gravel. Below this lie 19 feet of gravel with hardly any valuable contents. At this depth large blocks are encountered, forming a sort of stratum of their own, as if to protect what lies under them, namely, a blackish sand, which at the beginning yields 24 grains, and from which some 6 feet lower down we were able to extract nearly a quarter of an ounce to the ton.

The bed-rock lies at least 20 feet deeper—that is to say, at least 45 feet below the surface. A native claimed to have reached it once. The people burrow in the ground like moles, and produce what are known

Kuch-Manor. Plateau.

DANDUSHKA-BEND.

in America as coyote-diggings. These tunnels are about 4 feet high by 2 feet, and go down to a considerable depth; but there being no ventilating-shafts, the farthest point that can be attained depends on the possibility of being able to breathe. As the strata are concave, getting thinner as they rise up the mountain-side, they can be successively intersected at any angle. The native shafts are directed towards the mountain, and descend steeply until the rich layer is struck, which they follow until the primitive oil-lamps cease to burn. Thin, sickly looking boys carry out the earth on their backs. They are half naked, and the few rags that just manage to stick to them are drenched with the muddy water which oozes from their baskets.

The level of the underground water coincides with that of the rich gravel, and is got rid of by what is technically termed a tail-race. Its initial stage is some excavation near the surface, from which the water is drained by a trench. As the work progresses up-stream, the canal is continued almost horizontally, thus cutting deeper and deeper into the rising ground. The canal is protected with flat stones or boulders, and the tailings of the advancing works are used to cover it.

From a shaft that is sunk near such a canal a short passage is run to connect it, the miners being guided by the sound of the running water. In this way these subterranean drains grow section by section, some of them being over a mile in length. The native method of mining is extremely dangerous. Sometimes a tunnel will collapse without warning, and many lives be lost in this way.

The horizontal distribution of the gold is very even. We found the same proportions at different spots. Surprises in the shape of large nuggets or nests are out of the question, but so are serious disappointments, for what one finds in one place one is sure to find 5 miles away, if only the general conditions of the localities are similar.

If it were not for the money-lenders and official blood-suckers, the native population might attain a flourishing condition. It has, however, lost all ambition and all forethought for the future. Though food is easily and cheaply obtainable from the nearest market towns, the natives are too poor to lay in stores, but live precariously from hand to mouth. Famines are frequent, and then the population is reduced to bread made from the pith of the asafœtida, while caravans laden with grain may be passing along the Yakh-Su on their way to Darwaz.

During our stay at Safet-Darya we made frequent exploring excursions to the surrounding mountains and valleys. Several visits were paid to the top of Hazrat Ishan. A fine ridge 7 miles in length, descending gradually from the summit, affords a splendid line of ascent. We used to ride for a height of 11,000 feet, completing the rest on foot. I give the height of the mountain as 13,000 feet, this being about 300 feet below the mean of the numerous readings from my five aneroids. All other heights have been treated in the same way, thus avoiding all exaggeration. On the south-eastern side the mountain is steep, owing to the projecting ends of the uptilted strata.

The opposite slopes are covered by the only glacier of which the conglomerates can boast. It is one of the second order, reaching down to a level of about 11,000 feet. Two hundred feet from the upper rim a deep bergschrund cleaves it from one side to the other, and below this several small crevasses occur. The one terminal moraine which I had occasion to inspect, and which is a little to the right of the main ridge of the mountain, is a high mound of *débris*, forcing the glacier to split at this point. Similar examples on a larger scale are offered in the Alps by

the Macugnaga glacier and the glacier the Miage, which also have obstructed their own way.

The most noteworthy peculiarity of this moraine, however, lies in the fact that it consists of rounded smooth stones instead of angular fragments. For a glacier working on conglomerate, the production of such a moraine is of course quite logical, but it strikes one forcibly as one of those quaint possibilities which the fertile imagination of nature loves to invent. A sharp ridge which begins at the *randkluft* parts the

A GORGE.

glacier into two branches. The longer one joins the *névé* in the col between Hazrat Ishan and the peak to the north-west. The shorter branch leads to the moraine which I have described. The snow-line I consider to be at about 11,000 feet.

The name of the mountain is derived from a Mohammedan saint, who is said to have converted to Islam this part of the country.* A minor

* This saint is also known as Hazrat Ali, and as another local name for the same person, that of Sha-i-Mardan was quoted to me. The mountain, in spite of its comparative insignificance among the great and numerous mountain ranges crowding the

saint, viz. a mullah from one of the villages, is buried on the top; a heap of stones and the usual pole hung with rags indicate the spot. Native officials in their gorgeous raiment may now and then be seen wending their way to the summit, bent on a pilgrimage to the holy grave. Any one not acquainted with the real reason for such bodily exertion on the part of these languid gentlemen, must rub his eyes and ask himself if he were not dreaming—an Oriental dignitary as a mountaineer is too strange a sight.

Owing to the particular position of Hazrat Ishan, the view from the top is instructive and beautiful. The great Transcaspian plain sends out a wedge in the direction of the Pamir. This wedge, which on the whole corresponds to the eastern parts of Bokhara, leads right into the great mountain fastness culminating in the Himalayas. Now, Hazrat Ishan is situated at the point of this wedge. Not a single snow-mountain is to be seen towards the west, but eastwards there is nothing but an ocean of ice and snow sweeping round in a huge curve from north to south. Thus Hazrat Ishan lies exactly at the apex of that semicircle which forms the boundary-line between eternal snows and the hills below the snow-line. We caught many a glimpse of the Hissar range, the Alai, Peak Kaufmann, the Pamir, and the Hindu Kush. Kuch-Manor we also climbed, and spent many exciting and enjoyable hours in its dark gullies and on the faces of its sunlit cliffs.

During our outings we never felt the least anxiety with regard to the weather. When day after day we beheld a blue and cloudless sky, we at last took it as a matter of course, and were never deceived. For a mountain region the regularity of the climate during the summer is astounding, and my table of barometrical and thermometrical readings is eloquent on this point. From the beginning of July to the end of October we had not a single drop of rain. In November, however, the Italian landscape changed into a Scotch one, mists came rolling down from the slopes, and snow began to fall. Until March these valleys are buried in snow, and almost inaccessible. Then comes a period of continual rain, which lasts till May, when the sun begins to battle effectually against the clouds.

I shall now deal at some length with the physical geography of a topographical feature which attracted my attention, and to the investigation of which I devoted some considerable time. So far I have been unable to find any mention of a similar phenomenon in the literature on the subject.

For want of a more elegant name, I shall let it be known as the

---

maps, seems always to have attracted much attention. For this its sanctity is partly responsible; moreover, its height and comparative isolation makes it very conspicuous to any one approaching from the west. On the map of the Pamir (*Proc.*, 1884) it figures as Kazret-Imam, and on the one accompanying Mr. Morgan's paper as Hazret-Imam, whereas the most recent Russian variant is the one adopted by me.

"Dandushka Barriers." As the word suggests, they are a series of obstructions, and as such they cannot fail to impress their existence upon any one wandering along the valley of the Dandushka river. They may be a joy to the geographer, but a different opinion is entertained by the horses which have to carry the said geographer across.

An idea of the locality may be formed by a glance at the map. Running from south to north in a fairly straight line there is a long and narrow valley. In its upper portion flows the river Dandushka, but its lower half is claimed by the Safet-Darya, which enters it from the east. Then, again, a river from the right, the Yakh-Su, asserts its supremacy

SAFET-DARYA VALLEY, WITH HAZRAT-ISHAN.

and carries the collected waters to the Kizil-Su, which takes them to the Amu-Darya, the hydrographical omega of these regions. Thus we observe that all the watercourses which come from the east successively give their name to the one that comes from the south. First of all we have the rivulet *ab*, of which I was not able to ascertain the native name; then the Dandushka (*cd* is very small), the Safet-Darya; and finally the Yakh-Su, which draws a line, as it were, and stops the continuation of the series.

For the sake of convenience, I shall apply the term Dandushka valley to the entire channel from the Kuch-Manor to the Yakh-Su. I am thereby enabled to express by one word a conception which

represents an organic whole. Its beginning is where *ab* turns to the north, viz. already above the real Dandushka river and the end where the valley loses its individuality by merging into a larger one. Of course there is not the slightest intention of changing the native nomenclature, which is based on the relative quantities of water, which therefore, as will be seen, also has an important indirect bearing on the matter.

The length of the Dandushka valley is about 10 miles, the height above the sea-level is about 5300 feet at the lower and 7000 feet at the upper end. The fall is three per cent., and very regular; water is discharged into the Yakh-Su at the rate of 50 cubic feet per second. The bottom of the valley is a flat expanse of gravel bordered by the mountain slopes.

Looking along the valley, we see parallel to it on our left a ridge with a mean height of 8500 feet. Towards the west this watershed sends out a well-developed system of mountains and valleys, whereas on our side it is an unbroken wall with steep and short buttresses. From this side not a drop of water flows into the Dandushka during the summer. On our right, the terminations of great spurs abut at right angles on the valley. They are the ridges of the mountain group which is dominated by Hazrat Ishan.

The whole of the Dandushka valley lies in these parts of the conglomerates where the strata are horizontal. To the south of the stream *ab* and along the Yakh-Su the strata are inclined. The extreme ends of our line, therefore, touch the boundary of the geologically undisturbed region of the conglomerates.

Placed at the point where Dandushka and Safet-Darya meet, the spectator will see stretching away from him towards the south an imposing avenue of towers, buttresses, and domes carved out of the solid rock. If the light be favourable, he can follow with his eyes for 5 miles, some of the harder bands which jut out cornice-like from the wall above him, and which he can still recognize as thin black strips in the far distance. Down-stream the material is softer, and has not given the same opportunities to the chisel of Nature.

On the map I have indicated by a dotted line the flat bottom of the valley, which is a gravel plain with a uniform fall of three per cent. At several places, indicated by Roman figures, this level is narrowed in so as to form a series of sections similar to a string of sausages. The cause of these contractions are the barriers. The first of these lies just above the Dandushka river proper; number III. is a double bar. If one examines one of these structures from one of the intermediate basins, it presents itself as a high dam stretching from bank to bank. Near the mountain a narrow cleft gives passage to the river. Inside this cañon on both sides are smooth walls of hard conglomerate, and the same material is discovered below the water after the superficial bed of gravel has been cleared away.

The average height of the barriers is 50 feet. No. 1 is about 27 feet high; all dimensions of the barriers increase as one proceeds downstream. The uppermost terrace of V. is 100 feet above the water. The lowest point is at the rim of the gorge, whereas one must not take the greatest elevation at any point more distant from the cañon than the middle line of the valley, for the connection of the barrier with the mountain is drawn out into long curves which do not admit of establishing a sharp line of demarcation.

As to the breadth of the dykes—or, what is the same, the length of the cañons—it likewise increases as one descends the valley, and the passage widens out in proportion. A man on horseback can just squeeze

HAZRAT-ISHAN.

himself through the cleft of No. I., which is 40 feet long; IV. and V. combined form a concrete canal half a mile long, 12 feet wide, and from 40 to 50 feet deep. With the single exception of bar 1, the cañon is always on the left side of the valley, and close to the bank. On entering and on leaving the dark defile, the river always has level ground on its right, steep slopes on the left.

The various geographical features which I have outlined so far may not seem to present anything extraordinary in themselves, but they become interesting when brought to bear upon each other with regard to the origin of the Dandushka barriers. How have we to account for the level sections? for the cañons, etc.? Were there lakes?

Was it ice-work? Have we to consider upheavals, subsidences, or volcanic forces? If the first impression is not subjected to scrutiny, the casual observer will, in nine cases out of ten, take it for granted that the barriers are solid rock throughout, their outward appearance being easily accounted for by a superficial covering due to disintegration. The aspect of the cañon sawn through the living rock leads, by an unconscious process of reasoning, to the apparently simple and satisfactory conclusion that there exists a homogeneous continuity to the other side of the valley. As long as this erroneous view prevails, further inquiry confronts one with a puzzle. The surroundings are entirely of hydrodynamic origin (I include possible glacier work). Everything in the locality excludes volcanic agencies or the least tectonic disturbances. The conundrum, therefore, would read thus: A rock-basin hollowed out by erosion, and provided with a *narrow* outlet contemporaneously or later by the same force.

Soon the suspicion comes that the bulk of a barrier is a younger formation than the substance of the walls of the cañon. A likely explanation is afforded by the hypothesis of a Dandushka glacier, which left behind at different epochs a succession of terminal moraines; but I think that there is a simpler solution.

I believe that the barriers are preserved strips of huge masses of *débris* which once overwhelmed the valley from one side, and that the gorges are cut through the projecting ends of ridges. A valley somewhat deeper than the present Dandushka valley, but otherwise almost exactly corresponding to it, received from the east a large supply of detritus, by which it became buried nearly throughout its entire length. The new level thus created we may assume to have been a little higher than the present barriers. This mass of *débris* sloped, of course, towards the west, and pressed the river against the opposite mountain-side. Excavating its bed, the stream cut through some of the bulging projections and promontories embedded in the softer material. The rocky channel acted as a natural river correction, and protected the earth accumulated against it from being washed away. Above and below these points, however, the process of clearing out followed the usual course, and in the intermediate basins the original profile of the valley is being approximately restored. A barrier and a cañon constitute a geographical symbiosis; they owe each other their origin and continued existence.

In Fig. 5 (see map) I have tried to show how one may imagine the consecutive vertical and horizontal displacement of the river. I shall now prove my assertions.

A direct evidence that the detritus has come from the right is the inclination of the slope. But as inherent probability no inference could be better than that drawn from the orographical formation of the neighbourhood. We have in the west the face of a long wall—in other

words, a small supply of the products of disintegration—and opposite to it the outlets of a group of mountains. This is also illustrated by the fact that the Dandushka receives no tributaries from the left. That the accumulations once filled the greater part of the valley is shown by bits of terraces preserved here and there in sheltered positions, *e.g.* between two ribs of rock, etc.

Against my own antithesis—the Dandushka glacier—I might propound the question why a cause acting in the direction of the valley should not have kept a better balance between the two banks, seeing that the gorges are almost entirely restricted to the left side.

A BARRIER.

The proof that the hard conglomerate does not reach far into the barrier could best be brought by an excavation, but since such an experiment is costly, I must rely upon circumstantial evidence. Solid conglomerate never crops out anywhere near the middle of a bar. Some of the barriers show a succession of beautiful level terraces, as I have intimated by the contour lines in Fig. 2.

At the cañon the barrier is always narrowest, broadening out towards the mountain and merging into its slopes with a long curved outline. This outline shows the range within which the earth is safe against being washed away; in other words, the "protected area" of a barrier. If, as in Fig. 4, only a short distance intervened between two gorges, the river had not sufficient room to reach the opposite side of the valley.

Therefore a curved wall of *débris* connects one barrier with the other. The protected areas overlap.

In Fig. 5 one sees how a little stream (*cd* on the map) has dug itself lengthwise through a barrier. Its high steep banks of hardened mud and gravel are innocent of rock, and only its entrance into the main cañon is effected through a cleft in the side wall. This is repeated by the Safet-Darya, which also, before its entrance into the "Iron Gate," shows nothing but gravel banks, 80 feet high, on either side. A barrier in profile is shown in Fig. 3. The mainstay of the dam, the block of solid conglomerate, is generally exposed to some extent. Its summit is often quite free, and then has caused a notch to appear, which shows that here the atmospheric influences have acted on the loose stuff at great advantage, owing to the good sliding surface offered by the rock.

The shape of this bare projection affords a clue to the outline of the hidden portion. In the case of narrow barriers, the ends of small ridges have been sawed through, but the long cañons have "sliced off" big pieces from the mountain-side. The same principle is observed when microscopical sections are obtained from specimens embedded in wax (Fig. 2).

All the foregoing conclusions are supported by a phenomenon, which can best be studied between bars 1 and 2. There the river runs through a low stone gutter 30 feet long, which has on the right side a thin wall only 3 or 4 feet high. The difference in level between this channel and the surrounding plain is so small as to escape the eye. Thus the river apparently follows some inexplicable whim, selecting a narrow rigid groove in preference to the wide expanse of ground at its disposal.

Two similar formations are below the sixth barrier. From the point of view of evolution, they are the beginning of cañons. Various reasons lead me to think that the original bottom of the valley has not yet been reached, and I have expressed this by the line *bc* in Fig. 1. As to the causes of the great accumulation of detritus, I think that possibly a glacier may have been responsible for it. The traces of glacial corrosion cannot be supposed to be preserved long in a crumbling material like conglomerate. Only where quickly covered up by some time-resisting deposit, they would have a chance of being handed over to posterity.

A reliable witness is, perhaps, the great boulder which I discovered at the junction of Safet-Darya and Dandushka. Its size is about 80 cubic feet, and it rests with one of its angles on the clean rock slab over which the water of the Safet-Darya runs into the other river. Its surface shows numerous short and irregularly grouped scars, and the assumption is not too risky that it has been brought there by the ground moraine of an ice-age glacier of Hazrat-Ishan.

After having continued our investigations to the middle of October, we had to think of the homeward journey. Before, however, finally leaving East Bokhara, my wife and myself made a trip to Muminabad, Kulab, and Sayat, pushing as far as the little Russian frontier-post of Parkhar, in the beautiful and idyllic plain of the Sayat-Darya. Here we have a pleasing combination of pasture, park, swamp, and impenetrable jungle. The reeds swarm with pheasants, and every pool of water is the abode of numerous waterfowl. The tracks of the tiger are frequently seen, but I waited four consecutive nights without getting a shot. Returning to Safet-Darya, we found a snowstorm raging in the Yakh-Su valley, and, arriving at the Russian colony, found the place buried in snow. These signs of approaching winter warned us not to delay our start. On November 4, therefore, we left, following our previous route as far as Ak-rabat. Here we struck northwards, and travelled by way of Shahr-i-ziabs and Kitab to Samarkand, thus bringing to a close a most interesting and instructive journey.*

After the reading of the paper, the following discussion took place:—

Mrs. Rickmers: I have often been asked how I bore the hardships of the journey just described by my husband, and perhaps this is a good opportunity for saying a few words on the subject.

In the first place, well-meaning friends did me unconsciously, perhaps involuntarily, a good service by drawing such harrowing pictures of the discomforts to be endured, that realization, as usual, fell far short of anticipation. My path from Batum to Bokhara was so strewn with their counsels and warnings that it was not their fault if, by the time I reached the Khanate, I had not a vivid premonition that we should die of thirst in the desert, or be massacred in some mountain fastness by the inhabitants. Even the secret hope I indulged that some mild form of adventure might be our fate was doomed to disappointment. Nothing more exciting than an occasional encounter with native dogs ever befel us.

As to the discomforts of the journey, they were really very trifling after all. Dress could fortunately be regarded with indifference, and this, together with the constancy of the climatic conditions, simplified matters considerably. Constant exercise in the open air is conducive to wholesome fatigue, and I have often rested better on the mud floor of a Bokhara hovel after a long day's march than amid all the refinements with which Western civilization woos the god of sleep.

Open-air travel suggests another consideration. The leisurely march on horseback enables the traveller to see and take in the details of the country through which he is passing. Western methods of travel, in proportion as they have gained in speed, have lost in interest. The traveller borne through space at the rate of 60 miles an hour, sees but half the landscape through which he travels, and, as often as not, passes through the fairest regions at night. When he wakes in the morning, after a somewhat disturbed night's rest, it is, at best, amid a good deal of discomfort that he performs his morning toilet. Not so in Bokhara; our quarters there were

---

* I have just received the 'Jahrb. K. K. Geol. Reichs-Anstalt' (Wien, 1898), B. 48, H. 3 and 4, where A. Bittner describes some of the fossils collected by Dr. von Krafft during his excursion to Daswas. There are several new species. Some strata near Ravnau are practically identical with the Werfener Schiefer of the Alps.

generally spacious enough to admit of dressing in comfort, while a morning bath was a luxury almost always attainable.

Exercise had another beneficial effect. By whetting our appetites, it made us indifferent to the monotony of our menu. If we could regard the culinary questions which vex and perplex our daily life in the West, with that equanimity with which we ate eggs for supper every night for two months in our mountain home on the Safet-Darya, we should go far towards realizing our dreams of Utopia. In conclusion, I believe any woman, possessed of good health and accustomed to exercise, could, if properly equipped, perform a similar journey and look back on it with pleasure. To such as think of so doing, my heartiest good wishes. May they go and prosper!

M. Lessar thanked the President for the invitation to address the meeting, and said that, not having been himself in Baljuan, he was unable to add anything on the subject, especially after it had been so ably exposed by Mr. and Mrs. Rickmers. In the narrative of their travels he was very glad to find a confirmation of what he knew as to the peace that now reigned in Bokhara, contrasting so strikingly with the state of things that existed there some thirty years ago. It was a great gratification to him to hear once more about the results of the efforts made by Russia for civilization in the country—a task which he was happy to say Russia accomplished in Asia conjointly with England.

Colonel Sir Thomas Holdich: I regret that I have but a slight acquaintance with these regions about which we have had so interesting a lecture. Although I am not personally acquainted with the country which Mr. Rickmers has actually visited, I have on two occasions approached it more or less. On the first occasion it was in the company of my distinguished colleague, M. Lessar; as I was with Sir Peter Lumsden's commission to define the boundary between Russia and Afghanistan. On that occasion we approached it from the west, and followed the Oxus up to within the regions of this map which you have in front of you. At Kilif we found that the river was in flood in the summer, bringing down the melted snows; it was fully half a mile wide, a splendid rapid-rolling stream across which it was exceedingly difficult to get. There is one very curious feature about this part of the Oxus—the only available ferry there which connects Kilif with the Afghan shore on the opposite side is worked by horses, which draw the boats across the river. I don't know any other part of the world where the same system exists. It was curious to see the enormous weight which could be piled on to these rude Oxus boats and hauled across by what appeared to be most inadequate means—two or three insignificant-looking little ponies. It was a revelation to me of the extraordinary power with which horses can swim. Beyond that, eastwards and northwards, we followed the course of the Oxus river until we came to the Kundur river; and in the course of our surveys, we investigated that most interesting region; but it hardly touched the country which Mr. Rickmers has described. The mountains on the north side of the Oxus were a considerable distance from the river. There was one I remember well, which served us for a landmark from afar, which, if I remember right, was called the Koh-i-Tan, somewhere west of Mr. Rickmer's recent journey, and which I should think would be well in view during the time he was working there. Beyond Kwaja Salar, which was the point we particularly went to investigate, we may have carried our surveys up to about 50 miles, and from that point the river was lost in the mazes of the hills Mr. Rickmers has described.

On the second occasion when I approached that country was on the Pamir Boundary Commission of 1895. On that occasion we saw the Oxus at its source at Lake Victoria. I was pleased to note that since my previous visit the Russian

surveys had made extraordinary progress; then much of the country seemed to be thoroughly well known. So far as we could tell in making a junction between our Indian and the Russian surveys, they had reduced the mapping of much of those regions to something like absolute certainty; but between that bend of the Oxus and the point beyond Kilif which we touched on the previous occasion, I am not aware that any one has really surveyed the Oxus with sufficient certainty to show an absolutely reliable map. Two or three explorers of the Indian Survey have been along that line. The surveyor who went with the Forsyth mission long ago traced the course of the Oxus from Kila Wamar to a junction at Kwaja Salar with our work which followed; but that man, I regret to say, met with a tragic end afterwards in Afghanistan. Subsequently another explorer followed the river down, and made an excellent traverse through that country, and from his work we know most about it—in fact, all we know at present; but it would interest me exceedingly to know whether from the northern side any surveys have been carried out to make us certain of the actual position of the valley. I need hardly say it is with very great interest I have listened to the lecture, which carries me back to regions which I have twice visited in such excellent company. It has not only enabled me to renew my acquaintance with my distinguished colleague, but has given me an opportunity of seeing what I really consider the very best series of illustrative photographs I have ever seen in this room.

Colonel Le Messurier: I have listened with very great pleasure to the account given by Mr. Rickmers and by Mrs. Rickmers of their exploration in Eastern Bokhara. I can most heartily endorse all that has been said of the civility and assistance rendered by the Russians to any travellers in Central Asia. The safety of the traveller is, without doubt, entirely owing to the Russian control. The English endeavour towards the civilization of Central Asia may be said to have ceased with the murders of Stewart and Connolly, in Bokhara, nearly sixty years ago, and with the death of Burnes at Kabul during the first Afghan war. Since that time Russia has continued steadily in performing the good work. Bokhara itself became a vassal state of Russia in 1868, on the fall of Samarkand; Khiva submitted to the same power in 1873; and later on the final overthrow of the Turcomans at Geok Tepe and Merv completed the abolition of slavery, and introduced law and order throughout the land. Of the mineral resources of the district more will be known hereafter, when the works will be more fully developed; but if tradition counts for anything, we may expect very large developments of such products as lead, silver, salt, and petroleum in great profusion from territories drained by the Oxus. As regards the "barriers," of which we have seen such excellent photographs, I understand that they exist amidst a vast region of conglomerates where the strata are horizontal. Similar areas occur in other parts of Asia, notably one in the valley of the Indus in Ladak as you approach it from the south, where the mountain plateaux and lower plains are composed entirely of conglomerate interspersed with bands of sedimentary rocks, which in this case are nearly vertical. In a less degree the photographs remind one of the formation to be observed in the Gomul and the mouth of the Bolan passes on the north-west frontier of India.

The President said: Before asking you to pass a vote of thanks to the author of the paper, I cannot help calling attention to the enormous benefit that Russia has conferred on these regions. When I was a boy I remember having the country described to me by a famous missionary, Dr. Wolfe. It was in a sermon at Malta, and it certainly kept me awake. I forget what the text was, but Dr. Wolfe first described the most unpleasant thing he had suffered himself, which was having a Guinea worm wound out of his heel on a reel. He then described the horrors of

the raids made by the Turcomans into Khorasan, and the condition of Bokhara at that time. Years afterwards my late friend, the famous Russian traveller Khanikoff, described to me the state of Bokhara in his time. Now it is described as a country perfectly safe to travel in by Mr. Rickmers and by Mrs. Rickmers, and we know that these horrible raids into Khorasan have entirely ceased. The whole of this is due to the countrymen of M. Lessar, who, I think we must agree, have conferred a great and lasting benefit on this region and on its people. Mr. Rickmers has described to us the extraordinary rapidity with which the natives of Bokhara sometimes cover hundreds of miles on horseback, which reminded me of the account of the old Spanish ambassador who paid a visit to the court of Timur at Samarkand. The great Timur was in such a hurry to see this strange visitor, that he gave orders that horses were to be got ready at every post, and no stoppage at all was to be made. The old Spanish knight was entirely made up of bone and sinew, and didn't much care; but, unfortunately, the fat Canon of Segovia, who accompanied him, got worse and worse at every stage. The people did not dare to let him rest. They must obey orders. They put pillows on the saddle for him to sit on, and got him nearly to the Iron Gates, but there the poor old gentleman died, while the ambassador arrived as fresh as paint at Samarkand.

You will all agree with me that Mr. Rickmers' communication is an excellent type of paper. Mr. Rickmers has not only, in a most interesting manner, described the country and the people and his travels, but he has also introduced most interesting points in physical geography in describing the mountains and valleys he has visited. I am sure you will all join with me in a unanimous vote of thanks for his paper and for the admirable way in which it has been illustrated.

NEW LIGHT ON SOME MEDIÆVAL MAPS.

By C. RAYMOND BEAZLEY, M.A.

I.

KONRAD MILLER'S great work, in six (or seven) parts, is now complete. The 'Mappæmundi'* occupy six thin quarto volumes; and to these we may add a seventh, of quite different size and appearance, but inseparably connected with the series that it precedes, and (in great measure) elucidates. This indispensable preface is itself composed of two parts: one of these is a coloured reproduction of the Peutinger Table; the other is a commentary on the same.† This study, published in 1888, was followed in 1895 by the first of the 'Mappæmundi,' an encyclopædic series of studies of the 'Oldest World-Maps' ('Die ältesten Weltkarten'). This first instalment dealt with the various designs of the "Beatus" group, to which we shall return presently; and here, perhaps, more than anywhere else, Prof. Miller has laid all geographical

* Mappæmundi, 'Die ältesten Weltkarten.' Herausgegeben und erläutert von Dr. Konrad Miller, Prof. am K. Realgymnasium in Stuttgart. Stuttgart: Jos. Roth'sche Verlagshandlung.

† (1) 'Weltkarte des Castorius, genannt die Peutinger'sche Tafel.' In den Farben des Originals herausgegeben und eingeleitet von Dr. K. . . . M. . . . etc. Ravensburg: Otto Maier. (2) Ibid., Einleitender Text, 128 pp.

students under obligation,* and shown to the fullest extent his brilliant powers, both of synthetic and critical work.† Here, also, he has most conspicuously added fresh material to our knowledge, by his rediscovery of ancient plans and map-sketches long supposed to be lost.‡ The 'Beatus' volume was followed in the same year, 1895, by an atlas of sixteen early mediæval maps,§ photographically reproduced; and by a textual examination of twenty-eight cartographical writings or designs, mostly from the eleventh, twelfth, and thirteenth centuries, which are grouped together under the title of the 'Lesser World-Maps' ('Die kleineren Weltkarten).‖ The fourth number of the 'Mappæmundi' series is given to the 'Hereford Map'; this appeared in 1896,¶ like the fifth volume, devoted to the curiously parallel map of Ebstorf.** Both of these are illustrated by sumptuous reproductions (the Ebstorf in facsimile size and colour) forming large wall-pictures. Lastly, in the sixth and concluding part, Prof. Miller attempts to reconstruct a number of lost maps, among which that of the Anonymous Geographer of Ravenna occupies the first and leading place.††

It may, perhaps, be useful to make some attempt at an estimate and summary of what has been done recently for the study of mediæval geography in these works, and especially in the first, third, fifth, and sixth parts of Miller's 'Mappæmundi.'

It seems hardly too much to say that, in relation to the Beatus group, this scholar has brought us out of dusk into day. We may not be able to agree with all his conclusions; we may sometimes think certain details of his theories are too definite and positive in relation to the scantiness and vagueness of the material; but none the less his work is a revelation. He has made it clear that several works of the early mediæval cartography, such as the map of "St. Sever," that of "Turin," the "Spanish Arabic" map of the British Museum (1109), and others, which had in former times been usually treated as quite distinct, were intimately related, and indeed were simply reproductions

* We must not forget the admirable work of Cortambert and other French scholars, from which Miller has advanced to the present position. See, *e.g.*, *Bulletin Soc. Géog. Paris*, 1877, pp. 337–363.

† Mappæmundi, Heft 1, 'Die Weltkarte des Beatus, 776 n. Chr.' (with 4 map-reproductions, and a scheme of the Beatus group), 70 pp.

‡ Three of the copies, St. Sever, Turin, and London of 1109, have been known some time; the rest are pretty recent finds.

§ Mappæmundi, Heft 2, 'Atlas von 16 Lichtdrucktafeln.'

‖ Mappæmundi, Heft 3, 'Die kleineren Weltkarten,' with 78 illustrations of maps and several schemes showing cartographical relationship. 160 pp.

¶ Mappæmundi, Heft 4, 'Die Herefordkarte, 1276–1283.' (With 2 illustrations in text and a reproduction in full size.) 54 pp.

** Mappæmundi, Heft 5, 'Die Ebstorfkarte, Ende des 13 Jahrh.' (With reproduction in full size.) 80 pp.

†† Mappæmundi, Heft 6, 'Rekonstruierte Karten, des 7 bis 1 Jahrh. n. Chr.' (With 66 illustrations.) 154 pp.

(with small additions or omissions) of an original Spanish design, fairly attributable to a certain priest of the eighth century. Beatus, the priest in question, was the author of a 'Commentary on the Apocalypse,' which by external and internal evidence has been fixed to about the year 776; and in this commentary appeared a sketch of the world, which, there is no good reason to doubt, came also from the hand of Beatus. The author was famous in the general Church history of Spain as a leading opponent of the "Adoptionist" heresy of Felix of Urgel; and along with Etherius, Bishop of Osma, he firmly maintained the eternal Godhead of Christ in opposition to the view of Felix and his friend Elipandus, Archbishop of Toledo, viz. that e Son had been adopted and received into Divinity by the Father. For some time he seems to have led a monastic life under Abbot Fidelis, of St. John of Pravia, near Oviedo; and his death, in 798, took place at the Benedictine house of Vallecava, or Valcavado, in the Asturias. Queen Adosinda, the wife of King Silo of Oviedo (774–783), was a patron and firm friend of Beatus, who was her confessor; by one tradition he was also an instructor of Alcuin, though by another story he was a deaf-mute, and hardly capable of shriving penitents or taking much part in the work of tuition. At any rate, he shares with the celebrated scholar of Charlemagne's court in the abuse of Elipandus, who pleasantly describes Beatus as an obscure hill-man and cave-dweller, a babbling denizen of the woods, an instructor of brutish beasts, a forest donkey, and the like. His friends, on the other hand, though declaring that our author led a saintly life, are less explicit about his science and learning; but there is no real ground to suppose that the map is by another hand than that of the Apocalypse-commentator of 776, or that the commentator in question is other than Beatus.

The original world-sketch of 776 was probably drawn to illustrate the spread of the Christian faith over the earth, and in especial allusion to such texts as Matt. xiii. 1–9, 18–23, 24–32, and other comparisons of the world and the kingdom of heaven to a field sown with seed. This idea was further developed by a series of pictures of the twelve Apostles, each in the locality where tradition fixed his preaching and his diocese. A note of the Latin Commentary tells us quite plainly that these vignettes were an essential feature from the first; that they illustrated the preaching or sowing of the Word "in the field of this world;" and, by implication, that the apostolic portraits were placed here and there—in certain definite cities and regions—upon a world-map.* This map, therefore, aimed, first of all, at exhibiting the *Divisio Apostolorum*. And the *Divisio* was conceived as follows: To Peter was assigned Rome; to Andrew, Greece or Achaia; to Thomas, India; to

* "Et hii falcibus haec seminis grana per agrum hujus mundi metent. Quod subjecta formula picturarum demonstrat."

James, Spain; to John, Asia; to Matthew, Macedonia; to Philip, Gaul; to Bartholomew, Lycaonia; to Simon Zelotes, Egypt; to Matthias, Judæa; to James, the brother of the Lord, Jerusalem; while to Paul there was no such definite location given, as his mission was to all the world. His portrait, however, appeared on the map, along with that of St. Peter, at Rome, as a co-founder of the "Apostolic see." * These pictures have only survived in one of the ten existing copies of the Beatus map, that of "Osma," bearing date A.D. 1203; and of course the so-called portraits are all of one type, and that an intensely sacerdotal one.

The ten copies just referred to are plausibly classed by Prof. Miller in two main groups, and each of these he subdivides once more. The first main division is the family of Osma, the second that of Valcavado. To the former belong three copies, to the latter seven. The parting of these two chief stems certainly takes us far back into the tenth century, if not into the ninth, and where the first, third, fourth, and eighth copies agree † we may well suppose we have absolutely original matter. Each of the great stems appears to be immediately derived from one or more "intermediate" copies (as we may term them) of the tenth century, copies which have not come down to present-day knowledge, but may yet be recovered, perhaps in the recesses of a Spanish convent.

The three examples of the Osma type are maps of very different value. First, there is the "St. Sever," now at Paris,‡ a work executed at the above-mentioned convent in Aquitaine about 1030–1050; this is the most valuable, the most carefully executed, and the richest in content of all the copies. It is probably the nearest to the original type, and is therefore primary in any attempted reconstruction of that type. Next we have the "Paris" of about 1250,§ which cartographically is a frightful jumble of seas, countries, and natural features,‖ but has some valuable reminiscences of certain original material not so prominent elsewhere. These two copies together form, in Miller's view, the first subdivision of the Osma *stem*; the Paris of 1250 making a link between this and the next group, or subdivision, of which only a single specimen remains. This is the "Osma" *map* of 1203, which

---

* The Commentary, which is mainly based upon St. Isidore, of Seville, describes all this in writing; and the map (in the Osma copy of 1203) agrees pictorially with the indications of the Commentary.

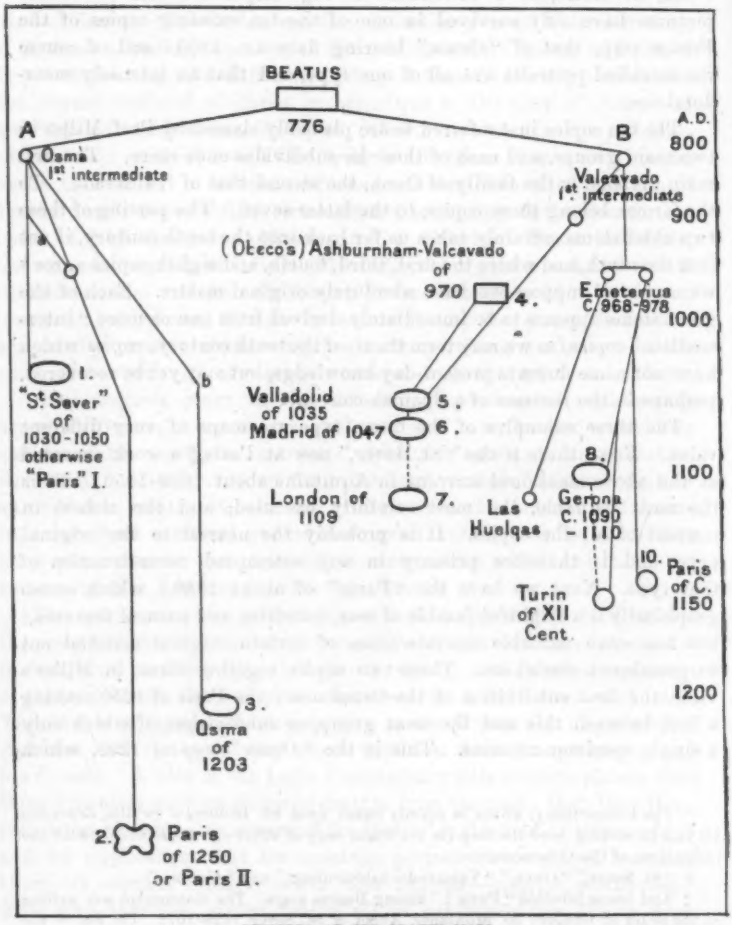
† "St. Sever," "Osma," "Valcavado-Ashburnham," and "Gerona."

‡ And hence labelled "Paris I." among Beatus maps. The manuscript was written at the order of Gregory de Muntaner, Abbot of St. Sever 1028–1072. On Fol. 6 the names "Stephanus Garcia Placidus" are conjected by Miller to refer to the artists or scribes of the same.

§ Also labelled "Paris II.," St. Sever being "Paris I.," and the B.N. copy of twelfth century, of "Emeterius" descent, "Paris III."

‖ E.g. *Palestine* in the interior of *Africa*, *Southern Italy* adjoining *Jerusalem*, which town is made quite separate from *Palestine*.

has much in common with St. Sever, especially in its general form. After the Aquitanian copy, it is certainly our chief example of Beatus cartography. In some points it is even superior, as more directly representing the original. Thus, in its pictures of the twelve Apostles



PEDIGREE OF THE BEATUS MAPS.

it is unique, and explains to us the very *fons et origo* of the Beatus scheme. Also, in its representation of the Eastern Mediterranean, of Taprobane (= Ceylon *plus* Sumatra, in confused mediæval idea), and of other parts, it shows to more advantage than any of its rivals. Like the

Paris of 1250, the Osma map represents the Skiapods or Shadow-footed Race of the Southern Continent, and depicts the site of Paradise simply by the springs of the Four Sacred Rivers. Its delineations of the two lighthouse towers at Alexandria and Brigantia are very remarkable, and certainly represent features of the original of 776.

The second family of copies Miller calls that of Valcavado. It contains seven examples, one of them the earliest yet found; but none of these seven approach in value to the maps of St. Sever or of Osma. They may, like the Osma clan, be subdivided into two groups: one contains the "Valcavado-Ashburnham" of 970, the "Madrid" of 1047, and the "Spanish-Arabic" of the British Museum in a manuscript of the Apocalypse Commentary written in 1109; the other includes the "Gerona" of about 1100, the "Turin" of the twelfth century, and the "Paris" of about 1150. Here also, as in the Osma group, we must allow for several lost copies, and especially for two of the tenth century, which are the immediate predecessors of the last three examples, and are both associated with one Emeterius of Tabara. Among the other examples here noticed, the Madrid map and the copy of 1109 seem to be directly inspired by the work of 970; they are all of very slight comparative value, and are further removed from the original type than any other copies. Thus the Valcavado of 970, traditionally the work of a copyist named Obeco, omits nearly all the rivers of the primitive design (as given by St. Sever, Osma, etc.), as well as the pictures or house-plans representing cities and towns, and turns the oval form * adopted by Beatus into an absolutely right-angled one. Among the examples of the last subdivision, those examples, namely, which come through the medium of the lost Emeterius transcripts, the Turin map is the most famous and interesting. It is not so old or so important as once supposed, for it appears to be no earlier than the beginning of the twelfth century; and it would seem to be in great measure a derivative from the map of Gerona (1090–1110?). But in any case it has remarkable peculiarities, which have naturally made it a favourite subject for reproduction. Perhaps it is the best known example of strictly dark-age cartography. For though the celebrated wind-blowers, so prominent here, are also to be found in a ruder form on the Paris of 1250, their execution on the Turin map is far more vigorous and developed, and supplies us with the best artistic detail of any feature in Beatus Geography.

There is no Graduation on any of our ten Beatus examples, though certain lines from the writing and ruling on the other side of the page have sometimes been mistaken for horizontal and vertical indications. In all these designs, except one, the east is at the top; the Paris of

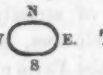
* This is practically certain. All the Beatus maps, except three, may be called ovals: "Ashburnham-Valcavado" is square; "Turin" and "Paris III." are circular. All of the more valuable Osma stem are ovals.

1250, which substitutes the south, probably through Arabic influence, makes this substitution with such hopeless inconsistency, in regard to other parts of the map, that it is clear the copyist is here departing from his original. Paradise is placed in the extreme east, accompanied with pictures either of Adam and Eve or of the Four Sacred Rivers. On the Ground-Work of 776 both these probably appeared together.* Following St. Isidore of Seville, Beatus seems to have placed the Garden of Innocence, not on an island beyond the continent, but on the mainland, encircled by unscalable mountains.

The division of the continents is in general the same as that of the so-called **T-O** maps [⊕], Asia occupying the upper half, while in the lower part Europe has the left-hand quarter, Africa the right-hand. The western border of Asia is formed by a series of rivers and narrow seas, from the Tanais, or Don, to the Nile.

Beyond Africa, separated by a strip of ocean, nine of the Beatus maps† show us the southern, Australian, or antipodean continent of an ancient theory, as endorsed by St. Isidore. According to this view, Africa did not reach to the equator, which was covered by an ocean zone, impassable from heat, beyond which again was a land of non-human monsters. Of the Antipodes, in the strict Greek sense, implying the Earth's rotundity, Beatus gives no hint; and the map of St. Sever evidently confuses Taprobane with the antipodean land of some classical geographers.

In the Beatus designs the ocean is usually ornamented with pictures of row-boats and fishes; and on one copy the fish in question appear to follow regular courses, as if to indicate the periodical wanderings of shoals of tunnies and herrings, or the direction of ocean currents. As to other features of special interest, we may perhaps notice that the Black sea and Caspian are only to be found in the three Osma stem copies. Also that the Red sea is understood by almost all the copyists in the sense of the whole southern ocean, including that on the south side of Africa, which, in Beatus, of course, is the *long* side of the continent



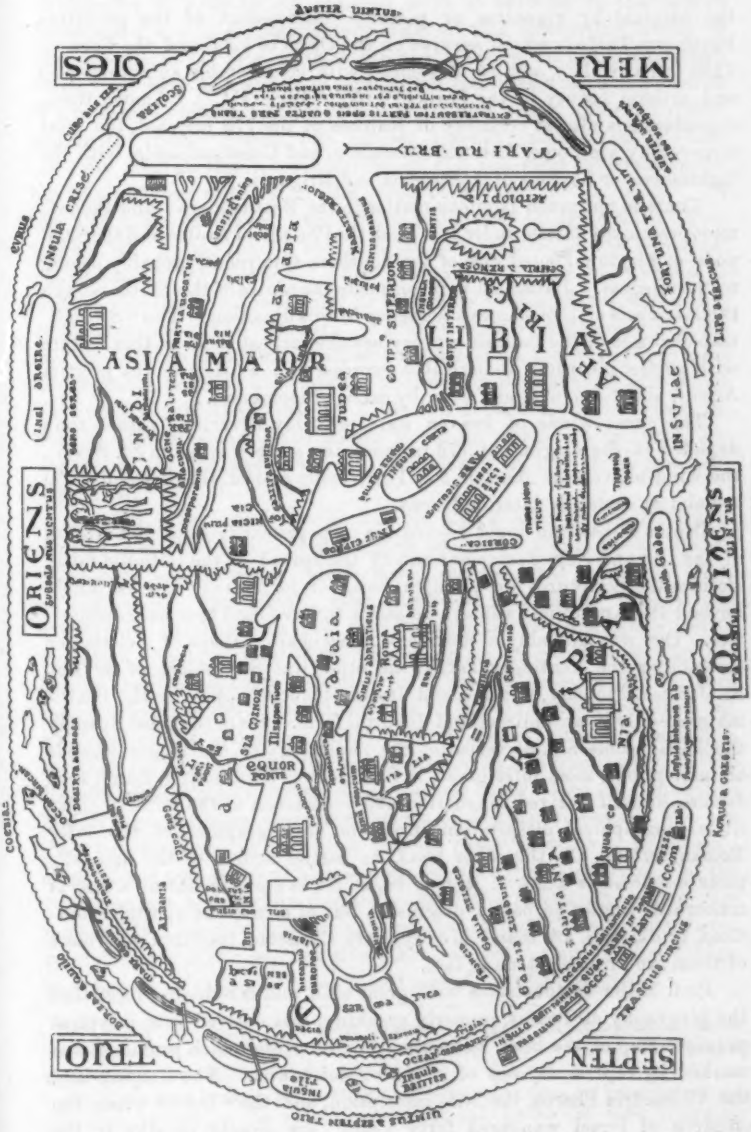
The Persian and Arabian gulfs are treated as mere inlets of the great Red sea; only the latest example, the Paris of 1250, shows a tendency‡ towards the modern restriction in this point. Again, only our two best specimens, St. Sever and Osma, give us any large number of mountains or rivers. But from these copies, taken along with

* As on the Hereford and Ebstorf maps of the thirteenth century.

† The only exception is the latest of our copies, the Paris of 1250 ("Paris II."), and this gives us the Skiapod of the southern continent in a corner. This, of course, points to the copyist having had an original which gave the southern continent as fully as, for instance, on the Osma example of 1203.

‡ Colouring only the Persian and Arabian gulfs red.

such scraps of evidence as the other transcripts afford us, we may conclude that the original must have contained the Rhine, the Rhone, the



THE ST. SEVER MAP.

Danube, the Euphrates, the Tigris, the Jordan, the Nile, and some Caspian affluents. On the other hand, the absence of Spanish rivers is remarkable. The chief towns of the οἰκουμένη were probably marked on the original by vignettes or pictures (reminiscent of the primitive Peutinger Table?) which survive on the Osma of 1203 and the Paris of 1250 ("Paris II."), and are developed with considerable sumptuousness and artistic beauty in the Paris of 1150 ("Paris III."). Among these, reproductions almost certainly of features of the 776 original, the most noteworthy are Rome, Antioch, Jerusalem, and Constantinople, with the lighthouses or beacons of Alexandria and Brigantia.

There is not much fabulous matter in the Beatus maps; and the two most prominent details under this head, the Phœnix of Arabia and the Skiapods or Shadow-Footed race of the Southern Continent, probably belong to the original. Jerusalem is never made the centre of the Earth, though the late Paris of 1250 shows a tendency in this direction. The "Sallust" map-sketches of the twelfth century are the earliest to show this feature with perfect clearness, though it is expressed in writing by the pilgrim Arculf, about A.D. 690, and even by earlier theologians.

The great winds of heaven were probably described rather than depicted in the original of 776 in much the same way as on St. Sever; the wind-blowers or Æoli of the Turin copy and of the Paris of 1250 are almost certainly later additions.

Beatus himself no doubt viewed his map primarily as an illustration of the Old and New Testament and of the spread of the Catholic faith. Besides the Scriptures (from which, however, he does not borrow much, beyond the Apostolical names), he seems to have used two main authorities. One was probably a Roman province-map, perhaps of a character resembling the Peutinger Table; the other was St. Isidore of Seville. St. Jerome, Ptolemy, Orosius, and Julius Honorius appear in the Beatus material only in an indirect and doubtful form. From the great Spanish theologian come almost verbatim the main body of the longer legends or inscriptions, most fully given in St. Sever. We must not forget that Isidore himself derived the matter, and even much of the form, of these little geographical dissertations from the cosmographies of the later Roman period. On the other hand, no earlier source of the apostolic picture-scheme is known; it may be, as far as embodiment on a map is concerned, wholly or partly original. But of course the apostolic locations, or dioceses, are found in very early Christian tradition, and most of them are probably true in fact.

Prof. Miller demonstrates with great skill and convincing force that the geography of Beatus, properly speaking, was derived from a typical province-map of the later Roman empire, on which each province was marked by representations of its two chief towns. The Caspian sea, the Alexandria Pharos, the Nile inscription, and the "Desert where the children of Israel wandered forty years," are closely parallel in the

Peutinger Table as we possess it (clouded by some thirteenth-century mediævalisms) and in St. Sever. The close relationship of the Beatus cartography to such an old imperial work as survives in the famous Table is the key to all satisfactory study of this interesting family of dark-age maps. It is a relationship that may be worked out in much detail; but here we will only notice such connection as will be found in a general comparison of the names of peoples, cities, hills, and rivers, and in the Indian, Syrian, and African legends; adding that in Gaul, not only are the same provinces named and the same divisions made, but the striking *omissions* of the table occur also in St. Sever.* Of the 133 names of towns in the Beatus maps, over 90 agree with "Peutinger," and among the 90 are found all (except two) of the important places marked by pictures.† The *arrangement* of the town-names in various provinces, and especially in Greece or Achaia, shows also a very close agreement. The "Francia" of Beatus, in its *trans*-Rhenane position, and the legends on Mount Sinai, and the desert of the wandering, were all probably on that old imperial map which Beatus used, and which lies at the root of the Peutinger Table; in certain instances where the Spanish draughtsman gives names to places which are pictured, but not titled, in Peutinger the same relationship is still more pointedly suggested.

On the other hand, Beatus has nothing similar to the Itinerary-content of the Table, and does not give us a single one of the thousands of stations and distances which occur in the great road-map. Nor, of course, can the table's many references ‡ to pagan temples and worship be paralleled in the world-picture of the Spanish priest of Vallecava. But, in spite of all differences, we probably possess in the Beatus maps a dark-age reflection, on a smaller scale, of one or more cartographical works of the latter days of the old empire, free from all additions of the crusading period, and of inestimable value as a link between the ancient and the mediæval world. While, lastly, in the Hereford and Ebstorf maps, and in several other plans of the central Middle Age, we have many indications of Beatus influence. We can show perhaps more at length in another paper that the links between classical and post-classical map-science, between the "Orbes Picti" of the Augustan age and certain designs even of the thirteenth century, are remarkably numerous and strong; and that mediæval cartography, even before the Portolani, was not altogether without system and knowledge, as apparent in examples other than those of the Beatus group.

---

* Usually little houses. The great vignettes at Rome, Constantinople, and Antioch were apparently recast, and much altered, by Beatus in his humbler, Christianized sketches from these splendid Pagan pictures.

† On the other hand, in the treatment of Gallic *towns* there are great differences, Peutinger representing the ancient name-forms, and Beatus (St. Sever especially) modern canton- or tribal-equivalents.

‡ Nearly 600, according to the most careful estimate.

REGIONS OF THE BENUE.*

By LICH H. MOSELEY.

In endeavouring to give a general description of portions of the Benue regions of Nigeria visited during a sojourn of seven years in those parts, the simplest way is to sketch in turn journeys made from time to time. Owing to the different kinds of country, and the many different tribes seen, it would be confusing to treat the subject as a whole.

First I deal with the country from Yola to Garua, including the valley of the Benue for 50 miles inland on both banks. The whole of this country, roughly 100 miles east of Yola, is under the rule of the Emir of Adamawa, the most powerful prince of the eastern half of the Sokoto empire. The original natives were the pagan tribes who now live amongst the hills skirting the Benue valley. The chief amongst them are the Batawas. These tribes were driven from their lands by the Fulanis about the time of the Fulah conquest of the Hausa States. Now the population consists of Fulanis and Hausa settlers, with a pagan settlement here and there that has been allowed to remain.

The country is flat and open, and splendidly fertile, little more than the actual planting being required to bring forth the most luxuriant crops of cereals. Guinea-corn, maize, rice, sweet potatoes, millett, and ground-nuts, together with a very fine corn known as "mazzagua," † are cultivated to a very great extent, and form the chief articles of food.

Indigo is also cultivated greatly, and thrives well, being used by the natives to dye their cloths, which are made from the cotton plant, also freely grown. The method of manufacturing the indigo now practised by the natives is very primitive, but there is a great future for this industry. Gum-arabic trees are found everywhere, and there are also a fair quantity of gutta-percha and kino trees.

In the town of Yola is a large native market, a stroll through which would show cloth, silks, salt, tinware, etc., of European manufacture, exposed for sale side by side with cloths and gowns from Kano and Nupe, beads, calabashes, looking-glasses, knives, etc., even to scents brought all the way from Tripoli. The Hausa trader predominates here, as this market forms a terminus of the great ivory caravan roads from the hunting-grounds and markets of Tibati and Ngumderi.

About halfway between Yola and Garua the river Faro joins the Benue, coming from the south and rising in the Ngumderi hills. The pagan village of Taefe marks the confluence.

---

* Map, p. 696. It should be pointed out that the district embraced in the map is in the territories of the Royal Niger Company.

† "Mazzagua" is what is known as a dry-season corn, being planted just after the last rains in November, and cut about June. During the period of growth this plant receives no water, and there is no rain, yet it grows to a height of 9 to 10 feet. The head is about 8 to 9 inches in length, and the grain the size of a pea. The flour is exceptionally good and white, and makes delightful bread.

An important item that should not be overlooked is that cattle thrive splendidly in this country. Large herds are to be met all over the plains, and one Fula tribe are known as the cattle Fulanis, on account of tending and rearing cattle being their sole occupation. Butter is made in large quantities. Horses also thrive well, and several good breeds are to be found, especially those coming from around Lake Chad.

The present difficulties to the development of this splendid country are, viz.—

(1) The difficulties of transport to the coast. For seven to eight months of the year the Benue is practically useless for this purpose, only small canoes being able to pass up and down. This is one of the many rich countries lying *perdu* for the want of a trans-African railway.

(2) The Fulani race are not workers, and the pagan tribes who are have no opportunities of making headway, owing to their persecution and oppression by the Fulanis, who consider them as their slaves, catching numbers to send to Sokoto in payment of their annual tribute.

The seasons in these parts consist of the rainy season, from June till the end of October, the remaining months forming the dries, with perhaps a single rainstorm about January. The climate is fairly healthy, though Europeans suffer from anæmia, caused by the heat during the months of December and January, when the Harmatan winds are blowing from the northern deserts. During this period I have known the thermometer to register at 5 a.m. 60° Fahr., and 120° at 1 midday.

The next country visited was the large Fulani state of Muri. The country here resembles the Yola (or Adamawa) territory, though in a much smaller degree. Full of the same natural products and possibilities, it has not the Hausa population of Yola, and will never be properly developed under Fulani rule.

The Benue, flowing through the centre, divides this state into two parts. The only other streams of any size are the two wet-season rivers Saurata and Mainarawa. These join the Benue from the south, both rising in the Mūmi hills, which run parallel to the Benue about 30 to 40 miles from the south bank. These hills are inhabited by a pagan tribe of the same name. The long stretch of country between the states of Yola and Muri is inhabited by a pagan tribe, the Bassamas, after whom the country is called. They are independent and very wild, possessing a very fertile country, rich in the same products as Adamawa, whilst the hills in the interior contain iron, and should prove to be rich in other minerals.

Following the Benue west, we come to one of its main arteries, the Taraba river, which, rising in the hills around Gashaka, flows into the Benue from the south-east, and waters 100 miles of country. The Taraba is about 200 yards across at its widest part, and in the wet season has a

very strong current, only navigable by powerful light-draught launches, whilst in the dries only canoes can be used.

About 40 miles further west of the junction of the Taraba the Benue is joined by the Donga river, at Zhibu. Ten miles above Zhibu the Donga is joined by the Bantagi river coming from the east, whilst the Donga flows north-west from the mountainous Tugum country, about 150 miles south-west of Zhibu. The Donga river practically marks the extent of the Fulani power, and also of the high, flat, open country right from its bank east to Garua. South and south-west of this river lie the mountainous pagan lands about which, until very recently, hardly anything was known.

During 1896 I made a journey from Ibi to Takum and Kentu, a distance of about 100 miles. Again, in 1898 and 1899 I spent over a year travelling in the practically unknown regions 150 to 200 miles south and south-west of Ibi, and will endeavour to summarize my description of these journeys, as to treat with every place visited would take up too much space.

From Ibi to Takum, a distance of about 75 miles, the country is well known, and little need be said of it here except that it is populated by pagan Jukums, Diis, and Tikaris, with a large proportion of Hausa settlers and traders. The land is fertile and fairly well farmed, rice doing well along the banks of the Donga and in the Munchi country. The roads are good and safe.

From Takum Kentu lies south-east about 38 miles, and it is there that the really big ranges of hills are first met; they run south and south-west, and will be found, I think, to extend to the Cameroon range. The furthest point visited south was Great Bafum, about 15 miles south of Kentu. From Great Bafum I proceeded north-west through Bafum Me, Bafum Katse, Mache, crossed the Kuni hills, and descended into the valley of the river Katsena, which I had previously crossed whilst in the Great Bafum country. This is the first time that the Katsena has been traced to this distance. It rises in the Nso hills, and flows generally north-west into the Benue, roughly 200 miles from its source. All the country mentioned above consists, as far as the eye could see, of huge ranges of hills, the highest crossed being the Kuni range, about 4000 feet. The roads traversed were extremely difficult. The valleys are filled with very thick tropical forests, containing many kinds of rubber, palms, teak, etc., and in some places mahogany.

At Kentu the population consists of a few pagan villages, built on the tops of the hills for protection from the Fulani raiders. The people are Tugums, and their tribe is scattered for about 50 miles south-west and around Kentu. Between Kentu and Dumba, which lies 10 miles due south of the former, no villages are met, the country being a wild, hilly waste. The Dumbas, as are also the Tugums, are a naked pagan race, simply farming enough corn, yams, bananas, and sweet potatoes,

etc., for their own consumption. Latterly, however, the natives around Kentu have made rapid strides towards civilization, owing to the trade routes between there and Ibi having been opened up and safety assured to Hausa traders desirous of obtaining the rubber, etc., in the forests around. During a stay of some months there, I induced a number of Hausas to form a settlement at the foot of the Kentu hills.

From Dumba, 20 miles south, the Bafum country begins. It is inhabited by the largest and most powerful pagan tribe known in these parts. The country is divided into three distinct portions, Great Bafum being the most westerly and largest, to the east of which is Bafum Me, meaning the palm-oil Bafum, on account of the oil made there. North-west of the last-named is Bafum Katse, meaning the farming Bafum, that and the manufacture of farming implements being the sole occupation of the people. Hoes, knives, matchets, etc., are made out of iron found in the hills around. On leaving this place, the chief presented me with specimens of their work in the form of a knife to cut up my food with, a matchet to cut grass for the horses, and an axe to supply wood for camp fires. These, he said, would always serve to remind me of Bafum Katse.

The whole of the Bafum tribe are wild pagans, the majority going naked. At Bafum Katse my camp was surrounded by thousands of wondering naked savages, who never before had seen a white man or a horse. At Great Bafum the kola nut is grown, and buyers come from Takum, the kola market for all the lower Benue states, to purchase. Bananas and plantains are the staple articles of food throughout Bafum, though maize and guinea-corn are grown in fair quantities.

In 1889, Zintgraff, the famous German explorer, crossed the Great Bafum country from north to south, avoiding the large settlements, but although seen by only a few natives, he is still well remembered, on account of an attempt made by the Com tribe, whose lands bound Bafum on the south, to capture his caravan.

The chief of Great Bafum, who resides with his household at a settlement high up in the centre of the Bafum hills, is a well-preserved man of about fifty years of age, and is the recognized chief of the whole of Bafum. At his request I visited him, remaining as his guest for three days, during which time myself and followers were treated royally. This was on account of fear being instilled into him by a firework display which I gave on the night of our arrival. Had it not been for this display, I doubt whether we should ever have got through his country. It would have been impossible to have found passable roads for carriers and horses without the guides he gave us, besides having to overcome the opposition we should have met without his passport. Before leaving, on an excuse to clinch our friendship, I managed to obtain a photograph of this chief.

It must be some years, however, before this country can be opened

up, owing to the immense natural difficulties presented. The river Katsena, which waters the whole country, is not navigable past the first small rapids, which occur 100 miles below here, the river also being full of rocks. William Wallace, agent-general of the Royal Niger Company, was the first European to explore this river, though only reaching as far as the rapids mentioned. The country is essentially a mineral one, the hills consisting mostly of ironstone, quartz, and granite, and would, I firmly believe, reward prospectors who cared to take the risks of a visit. Apart from minerals, ivory is by no means scarce, elephants being fairly numerous. To my knowledge, many small chiefs have quantities of ivory stored away.

The natives of Bafum Me and Bafum Katse, although the same tribe as Great Bafum, are much wilder, the former being cannibals and plunderers. Those of Bafum Katse are, however, very peaceful, but the most primitive people I have ever met. They go entirely naked, save for a beautifully woven grass cap. Never by any chance could one of their number be induced to cross the boundary of their lands, and only a few privileged strangers dare enter. One of the most striking features of this peculiar people is that they build the finest houses I have seen built by Africans not in touch with Europeans—large two and three storey houses, beautifully made of a hard red clay over a foundation of fan-palm stalks, having windows and doors with well-fitting frames, roofs of a pyramid shape, with rafters of the same palm, perfectly thatched with special grass. Furniture of a useful and comfortable kind, consisting of well-made bamboo beds, wooden chairs, and couches, are found inside. The formation of the chief town is quite European in its style—straight wide roads, with squares at intervals, the houses being built with even frontage, and the whole kept beautifully clean.

Mache, which borders Great Bafum on the north-west, Bafum Me on the north, and Bafum Katse on the north-east, is a similar kind of country. The people, however, are more civilized, on account of a few Hausa traders occasionally visiting here from Takum. The river Katsena flows through the centre, and from the high hills I was enabled to take valuable observations of its course from Bafum, hitherto unknown. In the valleys here I found Ireh rubber trees and rubber vines in good quantities.

The hilly country continues north-west, descending the Kuni hills about 4000 feet, in some places almost sheer, into the valley of the Katsena at Ngardi. Following down the river for about 20 miles, you pass through a country inhabited by the Dii's tribe, belonging to Mudi, to the west and south-west of which lies the Munchi country.

Munchiland is another quite distinct and exclusive country, running from the south bank of the Benué about 80 miles below Ibi, south to Dama. The country is cut up into numerous tribes of Munchis, although

all are of the same origin. They are very industrious farmers, growing yams, guinea-corn, maize, rice, millet, sweet potatoes, beans, henniseed, etc., in very large quantities, sometimes to such an extent that grain is allowed to rot for want of storage room. On account, however, of being very warlike, and possessing a most deadly poison, which they use on their arrows, they are a very formidable enemy, and unless suitably protected no stranger is safe amongst them. All of the villages, which are built in a circular form, are fortified with strong mud walls or pallisades, and ditches, as nearly every one is at war with its neighbour.

The land is generally flat, with fairly large hills at intervals, extremely fertile, and well cultivated. The Katsena, running through from south-east to north-west, waters the country, and also forms a means of transport during the wet season. Around Orufu, which lies about half a day's journey from the bank of the Benue, are found silver, iron, and antimony in fairly good quantities. The central and southern parts of this country are mostly given over to farming. The Munchi has already been taught to respect the white man to a certain extent, and when once his fighting proclivities have been subdued, his country should prove one of the most valuable portions of the Nigeria. I might add that he is also a big hunter, and ivory and skins form part of his wealth.

At the south-west corner of the Munchiland lies Dama, which consists of the states of Dama Chicua, Dama Cura, and Dama Lara. This again is inhabited by a totally different tribe, very numerous and fairly peaceful trading pagans. The land is very fertile and well watered. Yams form the chief article of food, and miles and miles of these farms are to be met with. Bananas, sweet potatoes, guinea-corn, maize, and millet are also grown. The farms suffer badly from the raids of elephants, of which the country is full. Quantities of ivory are to be found here. Many articles of trade seen with the natives had come from the Cross river, amongst other things noticed were cloth, matchets, flint guns, and powder. The nearest trading-station I gathered to be about six days' journey west of Dama Lara, the most westerly point visited, but could not ascertain the name.

To the east of Dama, and surrounded by hills, is the Gayem country, inhabited by a race of cannibals. They are very numerous, and live a totally secluded life. The whole of their lands consist of yam farms. Meat is very scarce, which was the reason given by the chief for their cannibalism. No member of another tribe dare visit these people, except, however, elephant-hunters, who are tolerated because of the meat they kill.

Here I might add that from Kentu, including Bafum, Mache, and south-west to Dama, taking in all the hilly districts, the rains begin early in March and continue until November.

In conclusion, I will attempt to roughly classify the countries mentioned and their future possibilities under two heads, viz.—

1. The high plains from the river Donga east to Garua under the Fula Mohammedan suzerainty.

2. The hilly pagan countries lying to the south and south-east of Ibi.

There are very great possibilities for the former. The country is splendidly fertile, and full of natural wealth. In the not far distant future a great trade should be done in ivory, gum arabic, indigo, kino, skins, gutta-percha, and rice. The importance of the last named in a rice-eating country cannot be over-estimated.

The roads and country, with a very few exceptions, are in a safe and orderly state, thanks to the ceaseless energy of the Royal Niger Company, so well represented by the present senior executive officer of the Benue districts, Mr. W. P. Hewby.

The race to whom the development of these parts so far is due is undoubtedly the Hausa. They are born traders, and will go anywhere and do anything for the sake of trade. Although not belonging to these parts, they are at many places more numerous than the actual natives, and in time must prove the predominating power, the Fulani, the present power, being a fast-dying-out race. It would not be amiss to term the Hausa the Parsee of Africa. He will undoubtedly play an important part in the future development of these regions. The climate is far more suitable to the white man than in any other part of the Niger territories. Once the railway reaches here, and European necessities are easy of access, I do not think I am far wrong in predicting a European colony.

Under the second heading we have a country of a totally different class—vast hilly tracts of land, with a network of forests, and numerous small streams running down into the river Katsena, and sparsely populated by many different pagan tribes. Although full of natural obstacles to development, there are many rich products, the chief of which are rubber, ivory, and timber. The former is found in most of the forests mentioned. Around Kentu, Mache, and west of Dama are extensive rubber countries. Among the chief kinds found might be named the Ireh (*Kixia Africanus*, Benth.), also the flake and ball vine rubbers, and the Balata tree rubber, the latter in small quantities. Of ivory there are large quantities in Dama, and the herds of elephants once hunted around Tibati seem to have been driven for refuge to the Dama wilds. Mahogany, teak, and many other good hard woods are here in abundance, though the present difficulties of transport must naturally delay the development of this trade for some time to come.

Before closing, I might add that every opportunity has been taken to map countries visited. And as Bafum and Dama have never been mapped before, and were in many places unknown to Europeans, I hope

my maps will be of value. The above also applies to the upper reaches of the river Katsena, which I think I can fairly claim to have traced to its source.

NOTE ON THE MAP OF THE BENUE.—The survey has been made with plane-table and prismatic compass, nearly always starting from points previously fixed. Many of the journeys crossed and recrossed each other, which afforded an opportunity of checking the work. The distances were obtained by watch.

MR. JENNER'S EXPEDITION FROM KISMAYU TO LOGH, ON THE JUBA.*

EARLY in the present year an expedition was undertaken by Mr. A. C. W. Jenner, sub-commissioner for Jubaland, through the countries bordering on the lower Juba to the west, as far as the important town of Logh, first reached by the Italians from the north. A report on the routes followed has been made by Dr. William Radford, who accompanied the expedition as medical officer, and this has been kindly placed at our disposal by the Foreign Office. It contains a considerable amount of new information as to the nature of the country, and the present means of communication, with full details as to the supply of water and fodder, and the practicability of the roads for carts or pack-animals. A start was made from Kismayu on February 7, 1899, the upper road, passing at first over the sandhills which fringe the coast, being followed as far as Turki hill, a mile or two from the mouth of the Juba. Beyond Yonti, 10 miles from Turki hill across the plain, there are two roads to the north, the one—very tortuous—running through the whole of the Gosha district, the other keeping more to the west on the open plain. The Gosha road, which was chosen by the expedition on the outward march, twice crosses the Webi Yeru, the arm of the Juba which bounds Twata island on the west. This presents a serious obstacle, as the banks are steep, while in periods of flood the channel contains a considerable body of water. Much of Gosha, especially near the chain of lakes to the west, is covered with forest, which must once have occupied the entire country, though it is now being gradually cleared by the natives for cultivation. The tsetse-fly is found everywhere, but is most prevalent in the neighbourhood of the lakes and thick forest. A means of protection of cattle against inoculation by the fly, in which the natives place much confidence, is a soup made from a species of mud-fish, but there is no evidence whether this is really effective. The western road is practically free from bush, and is therefore not infested by the fly. No water is at present found on this road, but it exists near the surface in at least three

---

* Map, p. 696.

places. In the rains, however, the heavy soil renders travelling impossible.

The two roads meet at Mibungo-Kisungo, the northern outpost of Gosha, whence also a road strikes west to Afmadu, 43 miles distant. The soil is very rich near the station, and the bush is being rapidly cleared. Further north the road passes continuously through bush, largely composed of African oaks. Several lakes were met with, some containing water both on the outward and return journeys, while others were dry. They are connected by channels with the Juba, and are filled by its flood water as well as by drainage from the surrounding country. The soil of the district consists of clay, with patches of red sand and earth, hard and dusty in dry weather, but very heavy after rain. Paths lead from the road to watering-places on the Juba, which was itself struck at a town named Kaboba. Beyond this the soil shows some alteration, stones and gravel appearing. A plateau runs parallel to the road on the west, at distances varying from 2 to 6 miles. Sugar-loaf hill, about 6 miles from the watering-place at Arnola, is a spur from this plateau running to the river, which it causes to make a sharp bend to the east. There is an upper road across the level plateau, as well as one following the river, the latter being cut by many watercourses running down from the higher ground. After cutting across another spur from the plateau, which causes the river to bend east through a rocky gorge, the road (rough at first) follows the western side of a semicircular loop which terminates near Bardera. Natives usually cross the river and take a direct road across the loop, thus saving at least a day. Saranli, opposite Bardera, lies in a wide plain, across which the road winds towards the north-north-west, afterwards turning west and reaching the summit of the plateau by a gorge 4 miles long, at the bottom of which a "tug" or torrent flows to the Juba. The ascent is rough and steep in places.

The road across the tableland is level and easy, except where the surface is broken by the beds of torrents. The plateau stretches away to the west in an unbroken line, but mountains appear to the north and north-west, and there is an abrupt slope to the river to the east. Isolated hills stand out from the surface in places in bold relief. At Harr, which is distinguished by the number of fine cedar trees, two roads diverge, both being good and well used. At El-Marera, in the Juba valley, they again unite, and the route to Logh lies mostly in the river valley, though the hills approach the river at times, and are then crossed by the road. The country from Saranli to Logh appears to be peculiarly adapted for the breeding of camels, many very large herds being seen, as well as numbers of goats, but comparatively few cattle. Large deposits of salt, with brine-pools, were seen in several places.

Dr. Radford's report contains many details respecting the geological formation of the country visited. Coral rock extends over the whole of lower Juba plain, while limestone first appears near Saloli, and is the

principal rock of the country further north. Basalt and lava also occur between Saranli and Logh. The whole distance traversed on the outward journey, as measured by a revolving wheel, was 409 miles, but much of this length was due to the windings of the road. A more direct road could easily be cut through the bush, as the physical features of the country present no difficulties.

RECENT JOURNEY FROM SHANGHAI TO BHAMO THROUGH HUNAN.

By Captain A. M. S. WINGATE,

I LEFT Peking on September 18, 1898, a few days before the *coup d'état*, and proceeded by steamer to Shanghai, where I engaged a "teacher" and a "taxidermist." From Shanghai I passed up the Grand canal to Kiang-yin, "the key of the Yangtse river," as it is called, and thence to Hankau, visiting all the Treaty ports *en route*. At Hankau I chartered a boat, engaged a couple of servants, and made my final arrangements with the great viceroy Chang-chih-tung for a safe conduct through the notoriously "anti-foreigner" province of Hunan.

I left Hankau on a lovely morning in November—the 8th, a day marked "red" by the murder of Mr. Fleming, an Australian missionary, in the very district through which I was to pass. Of this, however, I knew nothing, until rumours began to reach me many weeks after as I neared the disturbed district. Neither did news of the murder reach any of the British consuls until many days after the deed had been committed, although Kwei-yang city, the capital of the province, is only some 60 miles from the scene of the murder, and is connected with Chung-king on the Yangtse (where the nearest British consul resides) by telegraph. It is ever thus with telegraphs in China; important news which the Chinese "officials" do not wish to leak out is delayed by their orders, the telegraph "operators" being helpless.

I first visited Yo-chu, the new Treaty port (it had not then been opened) at the entrance to the Tung-ting lake, where, as usual with foreigners, we were most warmly greeted by the populace. The fact that the port would shortly be opened made them all the less glad to see me. Thus far we had been towed by one of the viceroy's gunboats, the presence of which helped to prevent the citizens from giving us as enthusiastic a reception as they, no doubt, would have otherwise done.

From Yo-chu we set sail on our own account, and from here my Chinese "teacher" commenced a sketch of the route by the help of a two-foot-square plane-table. This sketch was continued without intermission (except on one day from Chen-yuan, when it snowed so heavily throughout the march that we could not work the table) for over 2000

miles, in spite of rain, snow, fogs, wind, heat, and cold. The scale is 6 Chinese li ($1\frac{4}{5}$ mile) to one inch. I also took observations for levels and weather with two aneroid barometers, and two B.P. thermometers and other instruments by Casella. These were most kindly lent me by Mr. Consul F. S. A. Bourne, an experienced traveller in China, who had used them throughout his journey with the Blackburn Chamber of Commerce China Mission. No sketch has, I believe, ever been made, nor levels taken along this route from Yo-chu to Kwei-yang city; and about 400 to 500 miles is absolutely new country, especially some 200 miles between Yunnan city and Ching-tung *viâ* I-men; and, again, portions of my route from the Ching-tung valley to Ma-li-pa, or Tawnio, as the English maps have it.

The Tung-ting lake is a splendid sheet of water, although very shallow (but in no sense a marsh, as sometimes described) during six months of the year. There can be no doubt that it is slowly and very gradually filling up, especially in the northern half, where the waters of the Yangtse river bring down vast quantities of silt, which is deposited, as the current is checked, on meeting the water of the lake. The original channel, shown on most maps going direct across the lake from Yo-chu to the mouth of the Yuan river, no longer exists; and the traffic is now almost entirely confined to the channel of the Hsiang and Tze rivers, augmented by the ever-increasing tendency which the waters of the Yuan river have to take a southerly course. No doubt a channel does exist across the lake (and the Admiralty should make a complete survey of this important piece of water), but, owing to sudden storms which arise during the summer months, when the waters rise many feet, the boats still keep to the channel along the east and south shores of the lake. The lake contains many varieties of fish, and birds of many species find a home on the shores and islands and sandbanks. Egrets are very numerous, and are, sad to say, much shot by the Chinese for the foreign market. Gulls, and a very large crow, the ring-necked species, abound. I collected some one hundred and eighty specimens of birds, besides fishes, shells (both land and water), and butterflies, all of which have been sent to the natural history section of the British Museum for classification by specialists.

The scenery around the western end of the Tung-ting lake and in the valley of the Yuan river is exceedingly picturesque and beautiful. In some places the river flows through gorges, quite like those of the Yangtse, only on a miniature scale. I noticed one especially below Chen-yuan, where the cliffs on either side rise sheer up some 400 to 500 feet. From within about 100 feet of the top of the right-bank cliff a river flowed straight out of a cave in the rock, forming a waterfall with a good drop. Caves and underground rivers are very numerous along the route after leaving Chen-chu.

It is not quite accurate to speak of the Yuan river above Chien-

yang. It commences here by the confluence of two streams of nearly equal volume, called the Ching-shui and Wu-ho. Both take their rise in the hills east of Kwei-yang; the former, although really the more important river geographically, is, as a trade route, less valuable than the latter, owing to very shallow water during six months in the year a few miles above its confluence with the Wu-ho.

We proceeded up the Wu-ho to Chen-yuan (the head of navigation for large boats), where we arrived at the end of December in very bad weather. This continued for several days, heavy snow falling throughout the day and night, covering the surrounding country to a depth of several inches, and making it extremely uncomfortable marching along the unevenly paved highway which forms the great high-road from Peking to Yunnan city, and on to Bhamo. The Yuan river is extremely difficult and dangerous to navigate, owing to the number and character of the rapids and the numerous sharp rocks. The first of these occurs some 35 miles above Chang-te, but is not a bad one.

In the Chen-yuan district are vast deposits of very rich iron-ore and coal, besides other minerals. In fact, throughout the whole route from Chang-te to Yunnan city coal crops up every few days' march; and supposing a railway were in existence, a coal-supply would be found to exist not far from the line every 100 miles or so, while in places the rails would actually lie on the coal-bed. The coal in the district of Kwei-yang, the capital of Kwei-chu, is of most excellent quality, and I was much struck by the size of the lumps. The only mining done is of the usual Chinese rabbit-burrowing style, but every little village has its own little coal-hole for many days' march west of the city.

On reaching a place called Ching-chi, on the Wu-ho below Chen-yuan, I was astonished to find a complete set of iron-foundry works, with machinery by the best English makers. The works had been closed for some years, and the machinery was rusty and uncared for. The works cost £330,000 to erect. Opposite the works, on the other bank of the river, is a wall of some miles in circumference, which once enclosed a prosperous town of several thousand families, but which now only contains a few officials' houses and a temple or two. It is one among many others which have suffered during the wars which the Chinese have had with the "Miao," or aborigines living in the hills south of the river (Wu-ho).

At Chang-te, in Hunan, the hills first began to appear, and continued without intermission, and gradually growing in size and grandeur, throughout the whole distance to Bhamo, in Burma. Hankau is 196 feet above the sea. Chang-te is, roughly, 300 feet above sea-level, and Chen-yuan 2000 feet; Kwei-yang 3500 to 3600 feet; and Yun-nan 6300 to 6400 feet, so that it is a very steady and gradual rise the whole way from Hankau to Yunnan city. The average height of

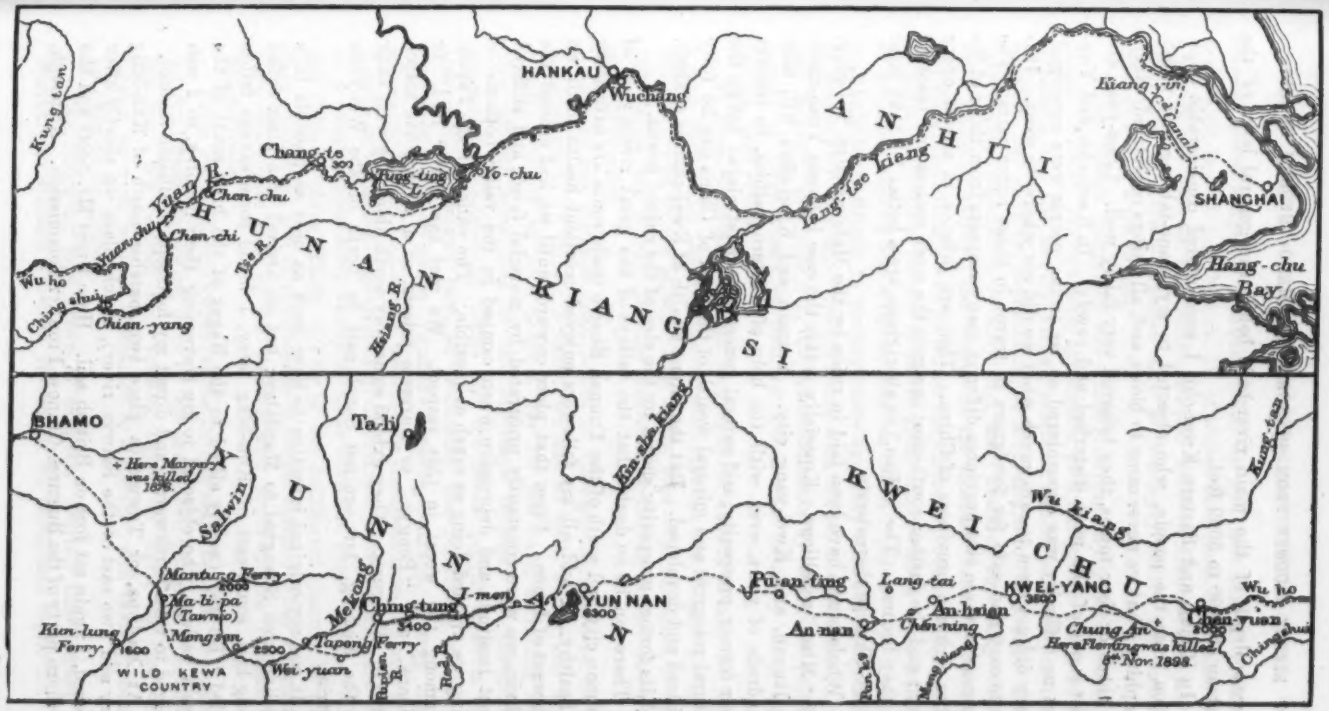
the higher peaks of Western Hunan and Eastern Kwei-chu is probably between 3500 and 4500 feet.

The headwaters of the Wu-kiang, or Kung-tan (flowing into the Yangtse at Fu-chu), the Wu-ho, Ching-shui, and Meng-kiang (a tributary of the Wu-ni-kiang, or West river), are all found pretty close together in the hills east of Kwei-chu, between 107° and 108° of E. long., and only a few miles from the high-road.

From Chen-ning (west of Kwei-yang), I followed the older portion of the ancient high-road from Peking to Yunnan city. Just west of Chen-ning it bifurcates, one branch—the more modern one—going north-west *viâ* Langtai and another going south-west *viâ* An-nan. Sixty years ago the chain suspension bridge over the Pan-kiang in this part was carried away by floods, and the road was diverted to the north in consequence. Although the bridge was replaced and is now intact, the traffic keeps to the northern route, because it is slightly shorter and a good deal easier. It is close to this spot where the roads divide that a tributary of the Pan-kiang descends from the plateau to "lower" Kwei-chu by a series of leaps or waterfalls (one of which has a sheer fall of about 300 feet), passing through precipitous gorges, and forming some most beautiful scenery. Both routes unite again just west of Puan-ting, on the Yunnan border.

It is interesting to note that the bed of the Pan-kiang, already mentioned, at the point where the road crosses it by the suspension bridge, is the lowest of any river which a bee-line drawn from Kwei-yang to Mandalay crosses; and it is lower than the bed of any river crossed by me during my journey from Kwei-yang to Bhamo. The next lowest is the Red river, or Shih-yang-kiang, west of Yunnan city, on the *direct* route from I-men to Ching-tung. They are only about 1500 feet and 1700 feet above sea-level respectively. The Mekong, at Ta-pong ferry, is about 2500 feet, and the Salwin, at Man-tung ferry, about 2000 feet, while at Kun-lung ferry it is 1600 feet. The above are only very rough estimates, but they serve to illustrate the nature of the country west of An-hsien city, with the exception of that portion of the plateau lying between the border of Kwei-chu and Yunnan city.

The country between I-men (a place three marches south-west of Yunnan city) and Ching-tung is terribly fatiguing to travel over—a continual up and down 2000 to 4000 feet every two days' march. The highest point crossed by me during this portion of the route (and indeed during the whole journey from Hankau to Bhamo) was just east of the Ching-tung valley, where the road reached 8400 feet, and the highest peaks of the range were probably 10,000 feet above sea-level. The next highest range was crossed just west of I-men, at about 8000 feet, the highest peaks being 1000 to 2000 feet above the pass. Taking a bee-line from Yunnan city to Kun-lung ferry, I should put the *average* height of the more important ranges at from 7000 to 8000 feet, and the



ROUTE MAP FROM SHANCHAI TO BHAMO, TO ILLUSTRATE THE JOURNEY OF CAPT. A.M.S. WINGATGE 1898-99.

Scale of Miles.

0 50 200 300

Route ..... Route not traversed before ———

average depth of the main river-beds below the general level of the plateau at 2500 to 3000 feet.

In Hunan and Eastern Kwei-chu I encountered considerable opposition from the people, who objected to my plane-tabling and photographing; but we never came to blows, and, all things considered, except in three or four towns, they behaved very fairly well. Chen-yuan district is one of the most disturbed and rowdy. In Kwei-chu and Yunnan no difficulty was encountered so far as the people were concerned. They did not seem to care much what we did nor where we went. It is quite easy and safe for foreigners to travel in these latter parts. The Chinese of these two provinces differ in many respects from those of the other eighteen provinces of China. They are inferior in almost every way; and the further south-west one goes the more useless and besotted do they become. The "Miao," or aborigines, are a better lot than most of the Chinese thereabouts.

Whole towns have been laid in ruins by the Mahommedan Tai-ping, and "Miao" rebellions. Especially is this the case between Yuan-chau, in Hunan, and Kwei-yang city. Yunnan and Kwei-chau will take hundreds of years, even with the help of Western nations, to recover their former prosperity, and several generations must elapse before the natural resources and mineral wealth of this part of China can be fully utilized and developed. But the latent wealth of Kwei-chau is evident, and its former prosperity shown by the size of the ruined towns.

There can be no doubt that the valleys of the great rivers west of Yunnan city and south of the Yunnan Bhamo trade route are extremely unhealthy. I and all my followers enjoyed excellent health until we got west of I-men. From that place onward, until we had crossed the Salwin, we were constantly prostrated by malarial fever, and suffered great lassitude and depression when camped in the valley bottoms—a thing we avoided doing as much as possible. The valley of the Papien is among the worst in this respect. We met the first "Pa-i," or "Shans," and "Pongys," or Burmese priests, at a village one march north of Wei-yuan. They extend some way north along the west bank of the Mekong, but are not found east or north of the Wei-yuan district.

It was my original intention to have kept as near as possible in a bee-line from Shanghai to Mandalay; but on arrival at a place called Meng-kon, south-east of Kun-lung ferry, I found some savage tribes called "Ke-wa" (nearly allied to the Nagas of the hills south of the Assam valley), who objected to my traversing their country, so I was obliged to turn northwards, and direct my footsteps to Bhamo instead.

At Ma-li-pa, or Tawnio (a place two marches north of Kun-lung ferry and two east of the Salwin river), which place we shortly after reached, I again set foot on British soil. Here I met Mr. Scott and the northern party of the Burmese-Chinese Frontier Commission. Although,

between Kwei-yang and Yunnan cities, we had met several missionaries, both British and French, all of whom were most hospitable and kind, we had been on two occasions (first between Hankau and Kwei-yang, and then from Yunnan city to Ma-li-pa) nearly two months without seeing a white face.

Three things impressed me greatly during my journey through China. Firstly, the opulence, thriftiness, prosperity, and spirit of the Hunanese, and the mineral and agricultural wealth of their province; secondly, the poverty, degradation, squalor, and want of energy of the very scanty population of Kwei-chu and Yunnan, especially South-west Yunnan; thirdly, the length of the Chinese "arm of the law," and the extraordinary way in which the Chinese Government manages to keep 350,000,000 people in fairly good order with a mere handful of so-called soldiers and a few scoundrels called "police"—so much so that only some fifteen to twenty years ago they subdued many tribes of Shans and "Ke-was" on the south-west border between the Salwin and Mekong, and took over the administration by means of political agents of large tracts of country which was formerly under quite independent rulers.

To those interested in the geography of China, it may be worth noting that, while the distance between Hankau and Bhamo along the route followed by me is, according to the best maps of China, roughly 1500 miles, the actual distance traversed according to my sketch is some 2360 miles.

Again, the distance from I-men to Ching-tung is shown on the maps as about 75 miles; I found we had to walk nearer 200 miles, which occupied us nine hours a day for ten days, excluding halts. This affords some idea of the difference between the distance as measured on a map of China and the actual length of route to be traversed, and shows how, in estimating the possibility of railway construction in Western Yunnan towards Sechuen, a very liberal allowance should be made in calculating distances from the map alone. I made no remarkable geographical discoveries, as this is difficult to do in a country possessing excellent maps drawn in great detail. Where the Chinese maps chiefly fail is in the indifferent manner in which they are drawn, and in the absence of proper scales. They are particularly inaccurate west of the Mekong and south of the Yunnan Tall Bhamo route.

From Ma-li-pa, or Tawnio (as the British maps have it) we again set out for Bhamo, following more or less the line of the newly demarcated frontier. We reached that trading depôt on April 20 last. From Bhamo we took boat in a steamer to Mandalay, and thence proceeded by train to Rangoon.

The following may prove of interest. During the journey from Hankau to Bhamo, between November 8, 1898, and April 20, 1899,

the thermometer ranged from 30° to 92° Fahr. in the shade. We experienced every kind of weather from bright clear sunshine and cloudless skies to dull dark days accompanied by fogs, mist, rain, snow, sleet, hail, frost, cold bleak winds, or hot fiery blasts. On the whole, except Manchuria and perhaps Kashmir, I know no part of Asia so suited to the people of Western nations for prolonged residence than the hills in the west of Hunan, and the plateau of Kwei-chu and Yunnan.

We had travelled from Hankau to Bhamo, about 2360 miles, of which about 880 were by water and the balance, 1480, by land. Excluding halts, we managed 13½ miles a day by boat against the current and with numberless rapids, over each of which it required from fifteen to twenty trackers to haul the boat; and by road we averaged 18¼ miles a day, including halts. We were 130 days actually on the march by river and road. During that portion of the journey between Kwei-yang and Bhamo, we went up and down over 2000 feet more than twenty times; while on eight occasions we went down 3000 feet and up again a similar height in a distance of only 10 miles. These figures speak for themselves, and give some idea of the very mountainous character of Kwei-chu and Yunnan provinces.

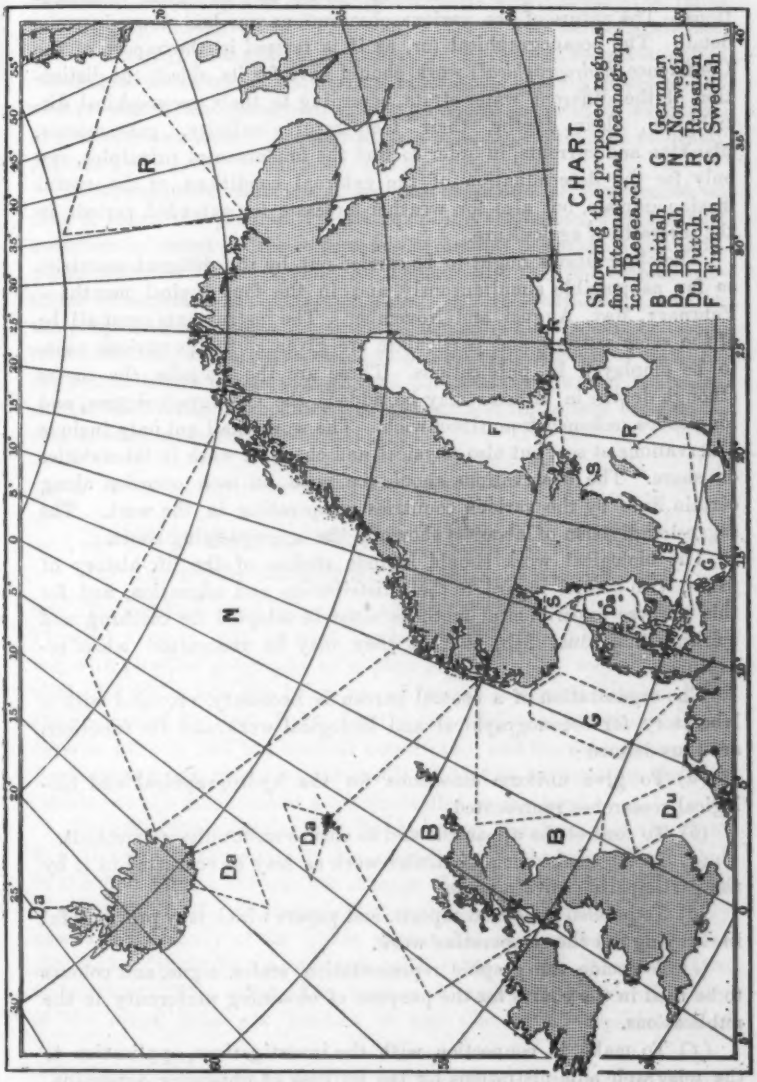
There is a fine field for the scientific explorer and for the artist and sportsman in Hunan and Kwei-chu; the rivers of the former province would delight the fisherman's heart. Even in Yunnan very little is known of the mines, especially the gold-mines, although gold undoubtedly exists in Hunan and Yunnan in not inconsiderable quantities.

I took with me a quarter-plate hand-camera as well as a full-plate camera, and out of about 220 full plates I got some 75 per cent. of fair negatives, and about 50 per cent. of the 550 quarter-plates came out satisfactorily.

INTERNATIONAL OCEANOGRAPHICAL RESEARCH.

In June last an International Conference was held at Stockholm, on the invitation of the Swedish Government, for discussing joint action in establishing observations on the North Atlantic, North sea, and Baltic, in the interest of fisheries. Representatives of the eight northern maritime nations were present. Germany sent four representatives, including Prof. Krümmel, of Kiel; Denmark three; the United Kingdom three, viz. Sir John Murray, Prof. D'Arcy Thompson, and Mr. W. Archer; Norway three, including Prof. Nansen and Dr. Hjort; Holland and Russia one each; and Sweden six, including Profs. Pettersson and Cleve and Mr. Ekman. The work of the Conference was divided into the consideration of three groups of proposals: (1) as to periodic scientific investigations in the sea; (2) as to special investigations required for particular fisheries; (3) as to establishing relations between the

different marine stations regarding some important biological questions. Five general meetings were held, and the whole question thoroughly



discussed, both in these sittings and in committees. The final results of the Conference are published in the official report in English and

German. It was resolved to recommend to the several governments a system of investigation which should extend over five years, and be carried out with regard to oceanographical and biological considerations. The nature of the various observations was laid down in some detail. The oceanographical (or, as it is termed in the report of the Conference, *hydrographical*) work should have for its object the distinction of the different water-strata, according to their geographical distribution, their depths, their temperature, salinity, gas-contents, plankton and currents, in order to find the fundamental principles, not only for the determination of the external conditions of the useful marine animals, but also for weather-forecasts for extended periods in the interests of agriculture.

The observations ought to be carried out by the different countries as far as possible simultaneously, and in the four typical months—February, May, August, and November. The instruments must all be of the same pattern, and particulars are given as to the various units to be employed in publications. These are the sea-mile, the metre (though depths in fathoms may be added), the Centigrade degree, and longitudes reckoned from Greenwich. The work shall not only include observations at sea, but also physical and chemical work in laboratories on shore. The observations should be made on each occasion along certain lines by the various countries co-operating in the work. The suggested division of labour is shown in the accompanying chart.

The biological work should include studies of the life-history of fishes, with special regard to their distribution and migration, and for this purpose experimental methods must be adopted for catching and marking individual fish, so that they may be recognized when recaptured.

The organization of a central bureau is necessary, provided with a laboratory for oceanographical and biological work, and its functions are thus defined:

(*a*) To give uniform directions for the hydrographical and biological researches represented.

(*b*) To control the apparatus and to ensure uniformity of methods.

(*c*) To undertake such particular work as may be entrusted to it by the participating governments.

(*d*) To publish periodical reports, and papers which may prove useful in carrying out the co-operative work.

(*e*) To decide the graphic representation, scales, signs, and colours to be used in the charts for the purpose of obtaining uniformity in the publications.

(*f*) To make, in connection with the investigations, application to the telegraph administrations for the purpose of obtaining determinations from time to time of the changes in the resistance of the cables which cross the areas in any direction.

The central bureau is to be situated in some convenient centre for oceanographical work, and is to be under the control of an international council, appointed by the various governments which supply the funds for carrying on the work. The staff of the central bureau shall consist of a highly paid general secretary and a principal assistant, one of whom must be an oceanographer, the other a biologist; a president and vice-president, who receive nominal grants in payment of expenses; and various assistants. The annual expenditure is estimated at nearly £5000.

It is suggested that the investigations should be commenced on May 1, 1901. As preliminary desiderata, the Conference suggests that attention be called to the importance of having telegraphic communication with the Færoe islands and Iceland; and that the various constants of sea-water should be experimentally re-determined, funds for the purpose being sought for from learned societies. An appeal made to the British Association has been responded to by a grant of £100 for the determination of the physical and chemical constants of sea-water, so that unofficially this country has been the first to move in the general plan of conjoint research.

BARTHOLOMEW'S PHYSICAL ATLAS.*—A REVIEW.

By HUGH ROBERT MILL, D.Sc., F. R. Met. Soc.

Since the publication of the second edition of Dr. A. Keith Johnston's Physical Atlas in 1854, no work has been produced in this country dealing with physical geography as a pure science in any way comparable with that which now lies before us. Even the admirable meteorological atlas compiled by Prof. Hann for the last edition of Berghaus' *Physikalische Atlas* in 1887 has been far outstripped, and the enterprise of Mr. Bartholomew has placed to the credit of British cartography the first instalment of a monumental work unrivalled in any land.

The new Physical Atlas is so far based on Berghaus that the right to utilize any of the plates in that splendid series has been secured; but in this first volume the number of maps adapted from the German work is relatively small. In choice and compilation the Atlas is substantially new, and the study of its plates cannot fail to surprise even skilled geographers with the amount and solid value of the data of modern meteorology. The editor, Dr. Buchan, himself the author of many of the maps, does not hesitate to say that of all departments of

* Bartholomew's Physical Atlas. Vol. iii. Meteorology. A series of over four hundred maps, prepared by J. G. Bartholomew, F.R.G.S., and A. J. Herbertson, PH.D., and edited by Alexander Buchan, LL.D., F.R.S. Prepared at the Edinburgh Geographical Institute, and published by Archibald Constable & Co., Westminster. 1899.

physical geography, that dealing with the atmosphere so far from being the least advanced, as has long been popularly believed, is, on the contrary, far ahead of such sciences as geology and biology as regards distributional problems. The task of preparing the Atlas has been performed, under the editorial supervision of Dr. Buchan, mainly by Dr. A. J. Herbertson, who has compiled many of the maps, especially those of rainfall, from new data. One of the features of the Atlas, and one not universal in cartographic work, is the scrupulous acknowledgment of the sources of all the maps, with particulars as to the manner in which they have been prepared.

If there is any criticism of an adverse kind which might justly be made, it is perhaps that the theories of meteorology have not received the recognition which they deserve. Dr. Buchan lays stress on the fact that the maps are based "on the patient and long-continued labours of myriads of observers in all parts of the world, dealt with and discussed on purely inductive methods," and this of course gives them a permanent value as records of observed fact. But we think that, in addition, a few of the more theoretical deductions would have proved useful. Some such there are, in the shape of diagrams showing the isotherms in a vertical section of atmosphere along certain meridians and parallels. Others might have illustrated the theory of atmospheric circulation on a uniform sphere, the vertical circulation of air in cyclones and anticyclones, and in cases where discordant theories exist, the presentation of each could do no harm. Yet a record of observed facts, mellowed only by so much of theory as is required for reducing pressures and temperatures to their assumed values at a standard level is unquestionably the most valuable if a choice has to be made.

So important did the Physical Atlas appear from its initial plan that the Royal Geographical Society gave its special imprimatur to the work, and the Fellows of the Society received the privilege of purchasing it at a reduced price, a privilege the period of which has now expired. Its price to the public is, however, so low that no one need be deterred from purchase who cares for such study.

The maps throughout bear the figures of the ordinary British units —inches and Fahrenheit degrees—as well as of the continental units of millimetres and centigrade degrees, so that their use should help to familiarize those using each system with the other.

A frontispiece shows the distribution of the meteorological stations from which the data for the four hundred maps were obtained, and thus indicates the regions over which the curves of the maps have been drawn with the greatest confidence.

The maps deal with two distinct subjects—*Climate*, or the normal distribution of warmth, pressure, wind, and rainfall; and *Weather*, or the actual distribution of these phenomena at particular times. The climatological work includes maps of the world on a fairly large scale,

showing the mean distribution of the year, on a smaller scale for the mean distribution of every month. Special maps on a very much larger scale are given for Europe, North America, the circumpolar region to 50° N., the United States, the British Islands, India, South Africa, and Eastern Australia. In each case such maps are given for the annual and the monthly distribution of temperature and of rainfall, while for most of them the normal distribution of pressure is treated in equal detail. Several hundred maps are thus accounted for, but in addition there are special maps of climate zones, of isanomalous temperatures (showing how far the temperature at each point differs from the theoretical temperature which would prevail if there were no disturbing interactions between land and sea), and special large-scale charts of wind-direction over the ocean at opposite seasons. Perhaps the most striking and self-explanatory of all the exquisitely coloured plates in the atlas are those showing the distribution of sunshine and cloud for the year and for every month. The sunny regions stand out in clear blue separated and surrounded by the regions of clouds, which deepen in tints of brownish grey towards the poles, the whole presenting a series of belts and spots curiously like those of the planet Jupiter.

The weather maps, necessarily less numerous, are even more interesting, for they are less familiar than climate maps. Here selection had to be exercised, and the compilers and editor deserve congratulation for their judgment. Maps are given of the chief storm-tracks of the world, showing the relative frequency of the storms. Special regions where cyclonic storms are particularly frequent, as in Western Europe, or severe, as off the West Indies, Madagascar, in the China sea, the South-Western Pacific, and the Missouri-Ohio valleys, are given on a larger scale and for different seasons. There are also many maps showing the conditions at specially interesting times over well-known regions, such, for example, as the day of highest and that of lowest recorded pressure over the British Islands, the month of lowest and that of highest mean temperature ever recorded in Europe, and the like.

Directions for reading the maps and a full description of each map are given in the introductory letterpress, and at the end as appendices are a list of the meteorological services of the world and their publications, a well-selected Bibliography carefully classified, a glossary of meteorological terms, and some useful tables.

Only one great region of the world is totally neglected. Every map of the world terminates nebulously to the south, and there is not a single map of the distribution of pressure, temperature, or precipitation over the south polar area. The absolute ignorance which reigns as to the physical geography of the antarctic regions has never been more plainly expressed than in this compulsory exclusion of all data. It is to be hoped that the reception of the Atlas will justify many new editions, in which the approaching unveiling of the antarctic will demand more and more

south polar maps, and contribute to the elucidation of the atmospheric geography of the world.

Other volumes of the Physical Atlas are in preparation, and will appear as each is completed. They will deal with Geology, Orography and oceanography, Botany, Zoology, Ethnography and demography, and General cosmography and terrestrial magnetism.

THREE RECENT BOOKS ON CHINA.—REVIEW.

By GEO. G. CHISHOLM, M.A., B.Sc.

Of all the commercial missions to which the immediate prospect of the development of the resources of China by modern methods has recently given rise, the most fully equipped and that with the most extensive and elaborate programme is that organized by the Chamber of Commerce of Lyons, and the report published by the director of this mission, Mr. Henri Brenier,* is of corresponding interest and value.

In organizing the mission, the Lyons Chamber of Commerce had the active assistance of those of five other towns, Marseilles, Bordeaux, Lille, Roubaix, and Roanne, and the members of it included representatives of all the most important branches of the national activity. They numbered twelve in all, including the director, the doctor, and Mr. Rocher, the well-known member of the French consular staff in China, who was associated with the mission by the French Government. The mission was immediately prompted by the treaty of Shimonoseki at the conclusion of the Japo-Chinese war, and set out on September 15, 1895, just five months after the signing of that treaty. The last members to return reached Marseilles in the same month in 1897. The intervening months were devoted to journeys in French Indo-China and the neighbouring provinces of China, but including very extensive journeys in the province of Sechuan up to its western and north-western limits. These journeys were not made by all the members of the mission together. From time to time the mission was broken up into separate parties to make inquiries along different routes, or to enable members representing particular branches of industry to make a special examination of the regions of more peculiar interest from the point of view of those industries.

The first part of the report contains, besides a general introduction and other preliminary matter, accounts of the various journeys made by the members of the mission, while the second part is made up of commercial reports on Tongking (with some notes of commercial interest with regard to other parts of French Indo-China); on the separate

* 'La Mission Lyonnaise d'Exploration Commerciale en Chine, 1895-1897.' Lyons, 1898. 8vo. One volume in two parts, pp. xxxvi., 386, and 470.

provinces Yunnan, Kweichu, and Sechuan; on Hongkong, Canton, and Hankau; on mines and metallurgy; on silk; on cotton and cottons; on oils and fatty substances; and on the Chinese monetary system, followed by an appendix containing notes on various points, and a chapter embodying general conclusions.

The volume is illustrated by a large number of excellent engravings, mainly from photographs taken by the mission, and, in addition to a sheet showing road profiles, there are eight maps on various scales. One of these is an economic map of China indicating the relative importance of the dependencies of the chief commercial centres of distribution and collection, another indicates the products and means of communication in Indo-China, a third shows the distribution of sericulture in Sechuan, a fourth (on a large scale) the rapids of the Red river (Song-koi) between Yenbai and Laokai, and the other four are maps of the provinces most thoroughly examined by the members of the mission, these last (on the scale of 1 : 2,500,000, or 1 : 2,600,000) showing, besides the physical features, the routes followed, the chief products of different districts, and in some cases the extent of the river navigation. On this head a good deal of new information was collected by the mission, and on the maps this is partly indicated by anchors of different form; but, unfortunately, the meaning of these different anchors is not stated under the explanation of the conventional signs, so that one has to guess it or collect it from a search of the text, for which one has not the assistance of an index.

The value of such a work as this consists mainly in its details, which cannot be summarized, but it may be worth while to call attention to two or three new or newly discovered facts to be found in its pages. The two principal geographical discoveries which Mr. Brenier claims for the mission—the ascertainment of the fact that the Patu-ho, or upper Hungshui, which he designates as the middle branch of the Si-kiang, forms for about 125 miles the boundary between the provinces of Kweichu and Kwang-si (pt. i. p. 88), and the final determination of the fact that the Kuchu-ho, or river of Luichou-fu, is the true headstream of the Si-kiang, in so far as it carries down a greater volume of water than any of its rivals (pt. i. p. 328)—have already been briefly noticed in the *Journal* (vol. xi. pp. 179, 180). In western Sechwan some members of the mission, in going from Kwan-hsien to Tatsien-lu, or more precisely between Tien-tsuen (near Yachu-fu) and Luting on the Tung-ho, followed a road that had never been taken by any Europeans before—and (says Mr. Brenier) with good reason, for it was all through the most difficult mountainous and forest-clad country, in which the chairs of the party were broken, two thermometers smashed, and one of the party nearly precipitated to the bottom of a ravine. Among the present signs of the times in China, Mr. Brenier mentions that the emperor has recently signed a decree which completely reforms the basis of the

examinations on the results by which the entrance to official life depends, ordaining that in future the candidates shall be examined in the European sciences. This, remarks Mr. Brenier, may have incalculable consequences, and as one result of this modern tendency he quotes the following recent examination question:—

"The tea trade is important, and occupies a considerable number of people. Indicate the means by which that trade might be improved in such a manner as to bring the profits to the Chinese instead of to foreigners" (pt. i. pp. 214, 215)

—a question of a kind that might fairly be expected in the projected university of Birmingham.

Most of the oversights that occur here and there in the volume are of such a nature as to mislead no one, and among these we may include the statement that the central parts of Sechuan are very thinly peopled (*très peu peuplées*, pt. ii. p. 233)—a statement which is expressly contradicted elsewhere in the book (as on p. 256, n.), and which seems to have arisen from the unintentional and unobserved duplication of the first syllable in *peuplées*. Another slip, if slip it is, is more perplexing, as it leaves the reader in doubt on a point of some importance. It is stated (pt. ii. p. 101, n.) that, including charges for transhipment, insurance, etc., but excluding customs duties, the cost of carriage from Hong-kong to Mungtse (or Mengtse) by the Red River route is 225 francs per ton, but the context seems to show that not Mungtse, but Yunnan-fu is meant.

The new botanical work which Dr. Bretschneider has paid us the compliment to publish, like most of his previous works in English, is a large book in two volumes, but paged consecutively. Its scope is sufficiently indicated by the full title given below.* Under the names of the different persons who have added to our knowledge of Chinese botany in any way, whether as travellers, scientific botanists, gardeners, or nurserymen, from Marco Polo downwards, it notes the additions which they have made, and it furnishes also longer or shorter biographical notes as to the persons to whom we are thus indebted. The notices of Robert Fortune and Père Armand David among others are particularly full and interesting. The arrangement is partly chronological, but the different travellers, etc., are also grouped according to nationality, or according to the nationality of the expedition to which they were attached. The copy which the author has presented to the Society contains one or two manuscript additions by the author, as well as corrections of the typographical errors noted at the end of the second volume.

---

* 'History of European Botanical Discoveries in China.' By E. Bretschneider, M.D., late Physician to the Russian Legation at Peking, Corresponding Member of the French Institute, etc. London: Sampson Low (printed at St. Petersburg), 1898. 8vo, pp. 1168.

The volume on the province of Chekiang,* which has been compiled by Dr. Carli, avowedly contains nothing new, but it is the most complete account of this province that has been published. As the title indicates, it is primarily a study in economic geography. It may be looked upon as a companion volume to Richthofen's 'Schantung,' having been prepared to draw the attention of the people of Italy to the region in which the Italian Government is now seeking to secure a settlement on Sanmun, or, as Dr. Carli uniformly spells it, Sanmen † bay, to obtain a concession for a railway connecting that bay with Poyang lake in the adjoining province of Nganhwei, and in other ways to establish an Italian sphere of influence. It opens with an introduction (pp. 1–71) giving an account of Chinese relations with the Western world, and latterly Japan, from the time of the first Portuguese expedition in 1516. In this section it may be noted that in more than one place (pp. 15, 58, 67, etc.) a recognition, not always accorded by foreigners, is paid to the liberal spirit of English commercial policy. It is pointed out, indeed (p. 59), that a different policy has recently been followed on the parts of the Chinese empire adjoining British territory, as, for example, in the region bordering on Burma, with respect to which the British have secured for themselves similar privileges to those obtained by the French in their territories in Indo-China; but it may be observed that such privileges wear a different aspect where the front door for commerce is kept open, as at Rangoon, from that which is presented where the front door is more or less closed, as at Haifong or Hanoi.

This introduction is followed by a general account of the province of Chekiang, and that by a section on money, weights, and measures, and the interpretation of statistical data. On this head, while paying a warm tribute to the publications of the Imperial Maritime Customs, it draws attention (p. 89), as is also done in the report of the Lyons Mission (vol. ii. p. 175), to the misleading character of the statistical reports of that body in respect of the trade of Hong-kong, which is all classed as British. Dr. Carli suggests that it would be easy and much better to name in connection with the Hong-kong trade the European (or other) port of destination or origin of that trade, adding "*viâ* Hong-kong."

There then follows a chapter on the four principal rivers of Chekiang, giving particulars with regard to the navigation both of the main streams and their tributaries, and the principal products conveyed on them. This is succeeded by one on the coasts of the province, another on the means of communication apart from the rivers, another on the general products of the province, and separate chapters on the three treaty

* 'Il Ce-kiang, Studio geografico-economico del Dr. Mario Carli.' Rome, 1899. 8vo, pp. xx., 278.

† The name, it is stated, means "Three Harbours."

ports of Hang-chu, Ning-po, and Wen-chu, and their trade. Lastly, there is a statistical appendix, including the tariff annexed to the treaty of October 26, 1866, between Italy and China. A map on the scale of 1 : 500,000, based chiefly on that in the report for 1882 of the Imperial Maritime Customs, is attached to the volume. There is no index, but a very full table of contents and numerous marginal headings facilitate reference. There are frequent citations of authorities, but these for the most part are not precise, and include even such vague and unsatisfactory references as 'Consular Reports, Washington,' and 'Diplomatic and Consular Reports on Trade and Finance, Annual Series' (without any number).

'THE INTERNATIONAL GEOGRAPHY.'*—REVIEW.

By Major L. DARWIN.

This work represents a new and valuable departure in geographical literature. A number of prominent authors have, no doubt, often combined together to produce some important work, but this is probably the first geographical text-book which has been compiled in this manner. Space forbids an enumeration of the different writers, but a sample taken at random will suffice to indicate the character of the whole work. Looking in the list of authors under a single letter of the alphabet, we find that Sir W. MacGregor writes on New Guinea, of which he was governor; Sir Clements Markham, president of the Royal Geographical Society, writes on Ecuador, Peru, and Bolivia; Mr. Mason, the collaborator, with Mr. B. H. Chamberlain, of Murray's Guide to Japan, gives an account of that country; Captain Mockler-Ferryman describes Nigeria, a country he has studied on the spot; Dr. T. Muir, the Superintendent of Education in the Cape Colony, writes on the Cape; Dr. H. R. Mill, the editor, discusses the principles and progress of geography, land forms, the United Kingdom, etc.; Sir John Murray writes on the Oceans, and the Antarctic Regions; and Mr. Myres describes Tripoli. In fact, the list of authors is alone sufficient to guarantee the great value of the work. The book is divided into two parts: the first, of about 120 pages, deals with "the principles of geography and their applications in the most general sense"; the second, of over 900 pages, includes a description of all the countries of the world, each written by a writer with special knowledge of the locality in question.

The first of these parts is perhaps almost too condensed, though it must be admitted that the allotment of space in such a work is an exceedingly difficult task. There are numberless persons to whom

* 'The International Geography, by Seventy Authors.' Edited by Dr. H. R. Mill. Newnes.

books of travel are the most fascinating reading, but who can with difficulty be induced to study geography systematically; and the editor may have been right in not straining the patience of such students by too long a preliminary investigation of principles before passing on to the actual description of the countries themselves. In addition to the articles already mentioned, Dr. Downing treats of mathematical geography, and gives, amongst other information, a short description of the chief methods of map projection; Mr. Ravenstein writes on maps and map reading; Dr. Gregory gives a brief but interesting account of the theories which have been put forward by various authors to account for the "plan of the earth," or the main distribution of land, water, and mountain chains; climate and atmosphere are dealt with by Mr. H. N. Dickson; the distribution of living creatures by Prof. J. Arthur Thomson, and of mankind by Mr. A. H. Keane; and Dr. J. Scott Keltie discusses political and applied geography.

In the second part, each country is described by "an experienced traveller, a resident, or a native," in the following order: general configuration, climate, natural resources, fauna, flora, inhabitants, manufactures and trade, political divisions, and statistical information. The fact that all the articles are written with that vividness which is only possible when they flow from the pen of one who has actually travelled in the countries he describes, certainly makes these systematic descriptions both more attractive and more valuable than the ordinary editor-compiled geographical hand-books.

Thus the very nature of the book almost defies criticism as a whole; for, if any section is to be criticized with any effect, it must be by an expert of experience equal to that of the author of that part; and to collect such an array of critics would be a task comparable in difficulty to the compilation of the volume. I should like to have seen this volume accompanied by an atlas, of exactly the same size, and giving *all* the names of places mentioned, with but comparatively few others. As a text book, it is sufficiently valuable to justify the publication of a collection of maps specially designed to assist the reader; and the reader would best be assisted by not having to search for one name amongst a crowd of others. The editor tells us in the opening page that the size of the volume has been kept within its present limits by "sacrificing such details as may be found better expressed in the maps of an atlas." This is a perfectly sound principle, which has not been quite sufficiently attended to by all the authors, and which would be more easily followed if the book were accompanied by an atlas to match. For instance, Mr. James Bryce, who is generally a perfect master in the art of geographical description, tells us, in an article to which many readers will turn at once, that the Transvaal is "bounded on the east by Portuguese East Africa"; a fact which the student of

geography should learn to read at a glance from a map, and not from a written description. One last criticism may perhaps be suggested. It appears to me that some geographers are under the impression that their science is dignified by the introduction of technical terms, and fail to recognize that the invention of a new scientific word is always a positive evil, to be avoided if possible. But this is a controversial point, to pursue which would probably have no other effect than to bring me under the censure of one or two of the many prominent geographical authors of this most valuable volume.

THE MONTHLY RECORD.

EUROPE.

The Caves of Yorkshire.—Notes on the caves of a portion of the West Riding of Yorkshire are contributed by Mr. S. W. Cuttriss to the *Proceedings of the Yorkshire Geologic and Polytechnic Society* (N.S., vol. xiii. pt. 4). Mr. Cuttriss divides the area under consideration into three geological divisions, viz. the Yoredales, the southern Carboniferous (between the upper and middle Craven faults), and the main Carboniferous within certain limits. The present notes are concerned with the last-named section, which is the most interesting as a field for studying the action of water on limestone, and the effect of the underground watercourses, on the general drainage of the district. The Leck Fells, Kingsdale, Chapel-le-dale and Ribblesdale fall within its limits. The contrast between the caves of this section and those of the southern Carboniferous is very marked, especially by the almost universal presence in the former of an active drainage channel, and the abundance of pot-holes, which are entirely absent in the latter. The caves may be classed as caves of engulfment and caves of debouchure, only the former, with one exception, occurring in the Leck Fell and Kingsdale districts; while in Chapel-le-dale and Ribblesdale the principal caves are those of debouchure, which far exceed the others in number. Caves of engulfment are usually low and soon terminate, either in a pool or the side of a pot-hole, or by the roof descending to the water or to the loose stones which obstruct the channel. Caves of debouchure have usually commodious entrances. In the whole district only three caves are known to Mr. Cuttriss in which it is possible to complete the journey from daylight to daylight, and each of these ends in a pot-hole. The latter part of the paper is devoted to these holes, which are, Mr. Cuttriss says, of far greater interest than the caves. In 1896 he formed one of a party, including Mr. E. Calvert, which completed the survey of Gaping Ghyll, first explored by M. Martel (*Journal*, vol. x. p. 509) in 1895, at which date Mr. Calvert's preparations were actually in progress. A still deeper hole than Gaping Ghyll is Rowten Pot in Kingsdale, which was first descended (after several unsuccessful attempts) by Mr. Cuttriss and several friends in July, 1897. About 100 feet from the surface a natural bridge spans the gully, while at 235 feet the bottom of the main chasm is reached, after two waterfalls have been passed. Lower down other waterfalls occur, while the lowest point of all, 365 feet below the surface and more than 20 feet below the bottom of the valley itself, is reached by winding passages. The whole undertaking occupied over fourteen hours. Diagrams and photographic views illustrate the paper.

Ancient Settlement in Kerry.—In the *Transactions of the Royal Irish Academy* (vol. xxxi. pt. 7), Mr. R. A. Stewart Macalister gives the results of a careful survey, made during three extended visits, of an interesting group of ancient

ruins on the coast between Ventry harbour and Dunmore head, about 10 miles from Dingle. Although in many respects of unique importance, these remains have met with comparatively little attention, the only printed attempt to give a general description of the site being that of Du Noyer (1858). Even the recently published 25-inch Ordnance Survey map indicates only a portion of the existing remains. Taking this map as a basis, Mr. Macalister surveyed the site field by field, and constructed a map including every ancient structure of any importance, much care being taken to distinguish these from buildings of possibly recent date. In the first part of the paper the writer describes in turn each of the structures examined, while in the remaining sections he discusses the character of the settlement, its probable inhabitants and date, and so forth. While not entirely coinciding with Du Noyer's views, which regarded the settlement as a primitive pagan city, Mr. Macalister more decidedly negatives the idea that it was a *laura* of Christian monks, from which it differs in several important respects, notably in the existence of multiple "clochans," which point unmistakably to family life. Although the structures bear abundant signs of defensive considerations, there is nothing to imply corporate organization or combination for purposes of protection, the separate groups probably living in mutual suspicion. As regards the inhabitants, little light is thrown by the study of the modern population of the district, as there is no proof of historic continuity; nor is much help afforded by the present nomenclature or by local tradition, which is extremely meagre. Although a continuous development of the early structures is noticeable, there is an unbridged gap between the latest of these and the cabin of the modern peasant. From the evidence of the remains themselves, Mr. Macalister concludes that the people kept sheep and goats, eating the flesh and spinning the wool; hunted rabbits and hares, and probably boars; and cultivated grain. He found evidence, not before noticed, that the settlement existed after the introduction of Christianity, though there are certain indications that the new religion was at first contaminated with the mysteries of the ancient beliefs. He therefore concludes that the "clochan" period of the settlement begins from a date somewhat anterior to the introduction of Christianity, extending however down to a comparatively recent date in the middle ages. The "duns," or great forts, which are found at the two extremities of the settlement, are regarded as originally belonging to the series of fortified headlands, due to an ancient race much older than the people by whom the bulk of the structures were made. The writer concludes with criticism of the course at present pursued with regard to these and similar ancient remains.

Festival of the Geographical Association at the University of Vienna.—On October 28 last, the Geographical Association—the oldest scientific institution of its kind among Vienna University students—celebrated the twenty-fifth year of its existence by a gathering in the buildings of the University. The Association publishes an Annual Report, in which the most valuable of the papers read at the meetings are printed; while by exchange with kindred institutions throughout the world, as well as by presentations and purchase, it has accumulated a library, which is a valuable aid to geographical study. In addition to those more immediately interested, including Profs. Penck and Tomaschek, and Colonel Hartl, lately called to the chair of geodesy at the Vienna University, there were present at the festival a representative of the Ministry of Education; Prof. Suess, President of the Imperial Academy of Sciences; Prof. Neuman, Rector of the University; and many past members of the association. After introductory addresses, a paper was read by Dr. Robert Sieger on "Anthropo-geographical Problems in the Alps," in which the relation between the form of the surface and the course of roads and boundaries was dealt with in a systematic manner. The proceedings terminated with a social gathering.

ASIA.

Return of Captain Deasy.—Captain Deasy has returned from Central Asia to India, where, he informs us, he is now engaged in working out the results of his surveys at the headquarters of the Survey of India at Dehra Dun. There is reason to believe that they will bring about many improvements in the maps of the countries traversed by him. We hope to have from him a detailed account of his travels on his arrival in this country.

M. de Déchy's Journey in the Caucasus, 1898.—Our honorary corresponding member, M. Maurice de Déchy, last year renewed his explorations in the Caucasus, accompanied by Dr. Hollos as botanist, Dr. Papp as geologist, and a Tyroleso guide. The first district visited was that about the sources of the Kuban in the western part of the range. After some ascents by way of the Chirikol glacier, the travellers separated in the Upper Uchkulan valley, M. de Déchy's companions crossing the range by the Nakhar pass, while the leader, accompanied by the guide, ascended the Gandarai valley and crossed the main ridge into the trackless wilderness of Abkasia. Here, as further east in the valleys belonging to the Ingur and Rion systems, the traveller is struck by the wonderful development of the vegetation, while rushing streams are seen on all sides. The main crest of the range consists of gneiss, granite, and crystalline schists, varying in composition in different localities. The way to the Nakhar pass (9620 feet) leads up by a succession of well-marked steps of granite and mica-schist, with small ice-lakes. The section of the main ridge between Elbruz and the Klukhor pass shares the majestic character of the higher Caucasus, the sides being precipitous, and the peaks sharply cut, though lower than those of the central part of the range. Important glaciers descend to the narrow northern valleys. The travellers met again in the valley of the Kluch (Kodor system), and crossed the range northwards by the Klukhor pass, visiting some glaciers to the west, in which direction they become smaller. The projected ascent of some of the peaks was prevented by the illness of the guide, who had to be sent home to Tyrol. A search for fossils in the schists of the Teberda and Kuban, with a view to solving the problem of their age, proved fruitless. The travellers now turned their steps eastward, and visited the mountains of Southern Daghestan. Here they were struck with the rapid progress of valley formation by means of erosion, in which respect a strong contrast is observable with the state of things in the Western and Central Caucasus. In the narrow valleys terraces are seen 1500 to 2500 feet above the channels of the streams, to which they fall precipitously. A visit was paid to the glaciers of the Bogos group, after which the district was left by the Bashi-Kodor pass. The Daghestan mountains, which form, from a tectonic point of view, a strongly individualized unit in the Caucasus system, consist chiefly of cretaceous and jurassic strata, the latter suddenly giving place southwards to the tertiary of the Sabui hills. Large collections of plants and fossils were made, which await examination by experts, while M. de Déchy added largely to his fine series of photographs.

The Ancient Topography of Buner, North-West Frontier of India.—At the time of the operations in Buner of the Malakand Field Force, early in 1898, facilities were offered to Dr. Stein, principal of the Oriental College at Lahore, to carry out an examination of the archæological remains of the district, interesting as forming a portion of the ancient Udyana, but till then wholly inaccessible to students. The results of his tour are described by Dr. Stein in a brochure issued in 1898 at the Government press at Lahore. The first section of the paper is taken up with a personal narrative of the author's archæological surveys, with descriptions of the ruins examined. Of these, some of the most interesting are those which occupy a rocky spur above the Barandu river, near the village of

Sunigram.* The importance of the site is indicated by the massive construction of the walls which support the terraces and by other architectural features. Although the number of buildings now traceable at Panjkotai is not large, the ruins bear comparison in many ways with the well-known remains at Takht-i-Bahi and Jamalgarhi, the size of the structures still above ground being even more imposing. In the second part of the paper Dr. Stein attempts the identification of the sites examined with places spoken of by the Buddhist pilgrims Fa-hien, Hiuen-Thsang, etc., whose writings form practically the only authorities for the early history of the district. The identification first proposed by Vivien de St. Martin, and since confirmed beyond all doubt, of Mangali the ancient capital of Udyana, with Manglaur in Upper Swat, affords a firm basis on which to build conclusions; and Dr. Stein finds a striking correspondence between the three sacred spots mentioned in the Chinese accounts and the ruins examined at Panjkotai, Gumbatai, and Girarai, the first-named representing the great Mahavana monastery. Dr. Stein was unfortunately unable to visit Mount Mahaban, adjoining the Chamla valley, which he considers to have the best claim of all the suggested sites for identification with the *Aornos* of the historians of Alexander. Extensive remains have been lately reported to exist on the mountain.

The Morphology of the Tian Shan.—In the third number of the Berlin Geographical Society's *Zeitschrift* for 1899, Dr. Friederichsen concludes his memoir on the morphology of the Tian Shan, of which the first part was noticed in the *Journal* for October (vol. xiv. p. 443). The first section of the new instalment deals with the hypsometry of the range, the whole of the data at present available being arranged in tabular form, with statements of the source from which they are derived and the means of determination employed. At the close of each table dealing with one of the larger subdivisions of the Tian-Shan, the writer sums up briefly the hypsometrical conditions of such subdivision. The general characteristics of the whole range are summed up at the outset in the following two conclusions: (1) that, in passing from north to south, an increase in all the absolute measures of height is observable, and at the same time a decrease in the relative differences between the valley-floors and the neighbouring ridges; (2) that in the direction of the longitudinal axis the values diminish from the centre towards the east and west. The effect of these laws is observable in relation to the hydrography and valley systems, which form the subject of the next section of the paper. The streams of the Tian Shan may thus be divided into—(1) those which flow longitudinally in the direction of the axis of the chain, in accordance with the slope from the centre towards the east and west; (2) those which flow perpendicularly to the direction of the folds, under the influence of the slope towards the bounding steppes and deserts, or of that from the higher southern to the lower northern portions of the range. The longitudinal valleys are again divisible into two types. The first are of small absolute altitude, and the river-beds are cut directly into the original Palæozoic rocks; the second have their floors at a high level, but are bounded by relatively low walls, and the streams flow over recent masses of detritus. These recent deposits seem in some measure connected with a former abundance of lakes without outlet, a phenomenon which is of importance also for the explanation of the transverse valleys. Other sections of the paper, of which we can do little more than indicate the contents, treat of the geology and climatic conditions of the Tian Shan, the part played by the latter in the determination of the morphologic features being brought prominently forward. The chief climatic characteristic of

* This name is said by Dr. Stein to date back to a period preceding the Pathan occupation of the country.

the range is undoubtedly its "continental" nature, and the sharply pronounced contrasts to which this is due exercise a preponderating influence on many phenomena connected with the external form of the range. Dr. Friederichsen's memoir must long remain the groundwork of all researches relating to the Tian Shan.

The Federated Malay States.—The reports for the year 1898 on the Federated Malay States contain many matters of interest. Taken as a whole, the year was one of prosperity and progress. Tin-mining is still the principal industry, and the price of this metal had greatly risen during the year. The trunk road, which connects Pahang with the western seaboard, was completed during the year. This important work, among other things, has placed the capital of Pahang within an easy two days' journey of Kuala Lumpur, and has opened up a large area of country, which until lately was practically inaccessible. Another road is in course of construction between Tras, on the trunk road, and Bentong, 21 miles in length. This road runs through a belt of uninhabited country, parallel to the main range of the peninsula, and will serve to open up a large area of stanniferous land. Mr. Hugh Clifford, the British resident of Pahang, urges the necessity of a further construction of roads for the benefit of the state. The highest temperature recorded in the state of Pahang during 1898 is 93° Fahr. at Pekan in November; the lowest temperature being 62° Fahr., in Kuantan, while the mean temperature for the year was 78·6°. The seat of government of this state has been removed from Pekan to Kuala Lipis, 200 miles inland. In the state of Perak trigonometrical surveyors have been at work on the Perak river; progress has also been made during the year in railway extension and other public works; good work has also been done in the new Forest Department of this state. The 170 miles of railway extension that are required to give through traffic from the centre of Province Wellesley to Port Dickson, on the coast of Negri Sembilan, will take, it is expected, between five and six years to complete.

AFRICA.

Lake Kivu and the Albert Nyanza.—We have received the following interesting letter from Mr. Arthur H. Sharp, dated "Toro, Uganda, August 30, 1899:" "I have reached here a few days ago, as I hoped, *en route* for Khartum and Cairo, but, finding no communication open, and having little time for prospecting, I am reluctantly obliged to return home at once, leaving my great friend and comrade, E. S. Grogan, to proceed *viâ* Albert Nyanza to Wadelai, and thence by hook or crook down the Nile. Mr. Coles will probably remember us as unworthy pupils in 1897. We can claim to have travelled from Ujiji overland to Usumburu (north end of Tanganyika), thence by Rusisi valley carefully mapped to Lake Kivu; here we found a German savant, Dr. Kandt, who has devoted three years to Kivu. He has personally walked round Kivu—540 miles, I think—taking four observations per minute, and finding himself 230 yards out at the end, or something like that. So we cannot in any way forestall his work. Continuing thence by east coast of Kivu to the north end, we reached the volcanoes. I spent three or four weeks exploring that country; thence to south end of Albert Edward Nyanza, most times in countries unexplored by Europeans; thence by east coast of Albert Edward Nyanza into Toro. We have found Lake Kivu entirely incorrect, and our observations tally with Dr. Kandt's, but, for reasons aforesaid, we can't publish our maps. The east coast of Albert Edward Nyanza is quite incorrect in our maps, and that I can show, no other white man having even mapped out that side. We have collected as many curios as possible on this route, including a dozen or so Batwa (dwarf) bows and arrows, according to Dr. Kandt, very scarce in Europe. We also came into contact with Congo cannibals, four of whom were left in Mr. Grogan's

hands; the rest had fled. Most unfortunately, one only has survived, and him I hope to get home."

Activity of the Egyptian Public Works Department in 1898.—The recently issued report by Sir William Garstin records a large amount of valuable work performed during 1898 in the various branches controlled by the Ministry of Public Works. Irrigation naturally takes the first place, and under this head good progress is reported, both with regard to works already on hand and to the inauguration of new improvements. The rise of the Nile took place late in 1898, and though eventually no great deficiency, such as has occurred in 1899, was experienced, the need of further works in Lower Egypt to utilize the additional water-supply to be provided by the great dam at Assuan was clearly demonstrated. It is therefore proposed to construct a new barrage, costing something under £E.500,000, on the Damietta branch, so as to give an independent supply to Northern Gharbieh, which in bad years is especially liable to deficiency. New weirs are already under construction immediately below the main barrage, which has itself been strengthened by cement grouting. A report on the great Nile reservoir works by Mr. W. J. Wilson gives both a sketch of the history of the project and a description of the Assuan dam as projected, with other associated works. From a geographical point of view, the report on the newly formed Survey Department, which includes the geological and other surveys formerly under separate management, is of special interest. A considerable amount of triangulation was carried out in 1898 and the early part of the present year, both in the delta (especially Northern and Eastern Gharbieh) and in the Fayum. The operations are now being performed with greater accuracy than has hitherto been the case. The Geological Survey has also added a large area to that previously mapped. The oases of Baharia (Bahrieh), Farafra, Dakla, and Kharga have all been surveyed on the scale of 1 : 50,000, and large additions to geographical knowledge made. West of Farafra springs were found, and much-frequented caravan tracks leading to the oases of Siwa and Jarabub. Other areas surveyed include the Nile valley south of Cairo and from the First Cataract to Korosko; the neighbourhood of the Fayum; a part of the eastern desert adjoining the gulf of Suez and of the Sinai peninsula opposite; and in the north the oases of Moghara, west of the Wadi Natrun. Captain H. S. Lyons, the director-general of the Survey Department, urges the need of a reorganization of the triangulation section, and of a separate staff to commence the surveys of large towns.

Russian Explorations south of Abyssinia.—The tenth number of *Petermanns Mitteilungen* reproduces from the Russian *Invalid* the account of explorations lately carried out by a cavalry officer named Bulatovitch, in the mountainous region west of the Omo, only partially explored by Cecchi and other travellers, who reached Kaffa from the north. The Russian officer is said to have first reached this region in November, 1896, and to have made a more extended journey in 1898, thoroughly exploring the mountain range which forms the watershed between the Omo and Sobat basins, and to which he gave the name Czar Nicholas II. range. A sketch-map is also reproduced, on which routes, presumably those of Captain Bulatovitch, are inserted, together with the positions of points said to have been fixed by him astronomically. They occur, however, almost entirely along the summit ridge of the range, mostly at a distance from the routes inserted. The range is said to be highest in its northern part, where several peaks exceed 10,000 feet. The central portion is distant only 20 to 25 miles from the Omo, and rises to a height of 3000 to 5000 feet above the river. The range intercepts the clouds brought by the trade winds, and great quantities of rain fall, especially in the central portion. Towards the south the climate becomes dryer.

The fall is abrupt towards the east, but more gradual to the west. The range is said to bear no trace of volcanic origin, although it lies directly between districts known to consist of eruptive rocks. Iron and copper and probably other minerals occur. The Omo takes various names in different parts of its course, being known successively as Shorum and War before receiving the name Nianiam near its mouth. Below the junction of the Gibie and Gojeb, the principal tributaries from the west are the Gumi and Kibish. From the western side of the range the Baro, Mena, Kilu, Sibilima, and other streams, flow east towards the Sobat.

Exploration in Futa Jallon.—A journey of some importance has lately been made through the less-known districts of Futa Jallon by a French colonial surgeon, Dr. Maclaud. A preliminary report on the journey appears in the September number of the *Bulletin du Comité de l'Afrique Française*, which body bore part of the expenses. A sketch-map of Dr. Maclaud's routes, originally published by the "Service Géographique des Colonies," is reproduced. Former explorers in Futa Jallon have, as a rule, kept to the main trade routes, but Dr. Maclaud traversed the country and neighbouring districts in all directions, from Timbo as a centre, so that he has added much to our knowledge. He travelled almost without escort, relying for success on the confidence inspired by his intimate knowledge of the natives and their languages. Owing to the French occupation and the political rivalry between the native factions, Timbo has of late years become almost a desert, though the extensive groves of orange trees mark the position of former habitations. The natives of Futa Jallon are by no means, Dr. Maclaud says, Peulhs of pure race, as was thought by Faidherbe; four distinct castes, corresponding to four invasions, being recognizable. Dr. Maclaud's excursions around Timbo have shed light on the hydrography of the various streams which diverge in all directions from the central *massif*, including the Tinkisso (Niger basin), the Little Skarsies, the Bafing or Upper Senegal, the various headstreams of the Faleme and Gambia, and, lastly, the upper courses and branches of the Rio Grande, and other coast streams of Portuguese and French Guinea. The sources of the Little Skarsies, Tinkisso, and of a tributary of the Bafing all lie in Mount Bundu-Aere, west of Timbo, within a radius of less than 2 miles. The Tene, which was formerly considered the headstream of the Faleme, in reality joins the Bafing, which at the lowest point reached by Dr. Maclaud had a breadth of 250 yards. A line of hills, 2600 feet high, separates the valley of the Bafing from the basin of the Faleme, which is formed by the junction of four important head-streams traversing a broken and fertile country. Dr. Maclaud obtained much information respecting commercial routes, etc., and made considerable geological, botanical, and ethnological collections, the last including a series of Fula and Mandingo skulls. He also made many astronomical observations and determinations of altitude.

The Southern Districts of the Cameroons.—Within the last two or three years some progress has been made towards a better knowledge of the southern districts of the Cameroons, to which, until lately, less attention has been paid than to the more northern parts of the territory. For the upper basin of the Nyong, the journey of Kund and Tappenbeck in 1888 long remained practically the only source of information. In 1897 the government decided to create an important military post at the station of Lolodorf, on the upper Lokunje, and from this as a centre, surveys have been made of the surrounding country. The results have not yet been worked out, but meanwhile Baron von Stein, who was for two years in charge at Lolodorf, gives, in the *Mitteilungen aus den Deutschen Schutzgebieten* (1899, pt. 3), a general description of the province, the limits of which towards the south and east are still undefined. He has paid particular attention to the native tribes

and their numerous subdivisions, and appends a rough sketch-map showing their several habitats. The hydrography of the region is also roughly shown, but in a manner which it is quite impossible to reconcile with earlier maps, such as that of the northern Bulu country, based on the surveys of Lieut. Glisczinski and others, given in the first number of the same periodical for 1899. From the description of Baron von Stein, however, it seems that considerable modifications will be introduced into our maps when the results of his surveys are worked out. The district of which Lolodorf is the centre lies east of the strip of uninhabited primæval forest which stretches along the coast. Its western portion, as far as the Pfalla, a southern tributary of the Nyong, is a more or less hilly country covered likewise with dense forest, while further east the country is more level and open. The hilly districts—composed chiefly of granite, syenite, etc.—are exceedingly well watered, the soil (a thick layer of humus) never becoming parched even after a dry season of three to four months. The river-systems are those of the Lokunje, Nyong, and in the extreme south-east the Lobo or Jea (Ja), a tributary of the Sanga. The Lokunje is said to rise near the southern borders of the Cameroons. The upper Nyong is navigable for a long distance, but lower down the river is much obstructed by rapids. The forests abound in valuable timber, but at present rubber forms the only exploitable product. The supply yielded by Landolphias, and in some places by Kickxias, is likely to last a long time. The most primitive tribe is that of the Bagielli, or Bekue (the dwarf tribe of Morgen), but this is likely before long to be absorbed by its neighbours. A section of the Bakoko, in the north, fall within the influence of the station, but the most important tribes are the Ngomba and various sections of the Pangwe (Mpongwe) family, the Bule being the most numerous. There are innumerable subdivisions, differing from each other both in language and customs.

Expedition in the Southern Interior of Angola.—It is stated in *Globus* (vol. 76, p. 246) that an expedition started in August from Mossamedes for the Kunene and Zambezi, under the leadership of the botanist Dr. Baum. The route sketched out is one leading from the Koroka to the Kunene near Humbe, and thence north-east and east to the Kubango. It is proposed to descend the last-named stream for some distance, and then strike across in about $16\frac{1}{2}°$ S. through an unexplored district to the Zambezi. The principal object of the expedition is to examine the agricultural and other capabilities of the country.

The Portuguese on the West African Coasts.*—By the publication, lately completed, of an English version of Azurara's famous Chronicle, the Hakluyt Society has placed in the hands of English readers the most authentic account which exists of the great discoveries carried out by the Portuguese under the auspices of Prince Henry the Navigator. The editorial work has been ably performed, and no pains have been spared in the endeavour to supply a complete elucidation of the text by notes and introductory matter bearing on the subject. The first volume contains an interesting sketch, by Mr. Prestage, of the life and writings of Azurara, to whom the task of writing a chronicle of the great deeds of Prince Henry was entrusted by the prince's nephew, King Affonso the Fifth. The chronicler is said to have entered the order of Christ—in which he came in time to be commander—as a young man. Applying himself later to the study of letters, he first became known as an author in 1450, when his 'Chronicle of the

* 'The Chronicle of the Discovery and Conquest of Guinea,' by Gomes Eannes de Azurara. Now first done into English by C. R. Beazeley and Edgar Prestage. London: Printed for the Hakluyt Society, vol. i., 1896; vol. ii., 1899.

Siege and Capture of Ceuta' saw the light. He seems to have then held a post in the royal library, of which he was custodian in 1452, finishing his 'Chronica de Guiné' there in the following year. The chronicle, of which two early manuscripts exist, was first printed at Paris in 1841, with an introduction and notes by the Visconde de Santarem. It in reality constitutes a memoir of the life and work of Prince Henry, whose ancestry and early life it describes, and who is throughout the central figure. The history ends, however, with the year 1448, the author's intention of writing a second part dealing with the final portion of the prince's work having never, unfortunately, been carried out. In the second volume Mr. Beazley contributes a useful sketch of the early history of African exploration, supplying details not given by Azurara, and treating of a variety of questions concerned with the geographical knowledge of the time. His notes on the early knowledge of the West African islands, and on African cartography down to the death of Prince Henry, form perhaps the most valuable sections. Reproductions of portions of early maps are given, including the Laurentian or Medicean Portolano of 1351, the Catalan map (1375), Andrea Bianco's of 1436 and 1448, and Fra Mauro's of 1457–59. With regard to Fra Mauro's map, the portion given is not of great value apart from the remainder of the continent, and it is to be regretted that a sketch at least of the whole of Africa, as shown by that cartographer, was not supplied. Mr. Beazley's interpretation of the map is at least open to question. He considers that the portion marked "Diab" represents the southern extremity of the continent, and thus credits Fra Mauro with a knowledge of its approximate length from north to south, whereas many considerations point in the direction of a much more restricted knowledge.*

The Fipa Plateau and Rukwa Plain.—The region east of the southern part of Lake Tanganyika has been traversed of late years by a number of travellers, and its geography may be said now to be fairly well known. A journey made in 1897 by Mgr. Lechaptois, vicar-apostolic of the Tanganyika Mission of the White Fathers, across the Fipa plateau and a portion of the Rukwa plain, helped among others to extend our knowledge, and is briefly described by Dr. Langhans in the tenth number of *Petermanns Mitteilungen* for the present year. Mgr. Lechaptois made a survey of his routes, and this, as well as the work of other travellers, is utilized by Dr. Langhans for the construction of a large-scale map of the district, which accompanies the article. The traveller, who had already visited the northern part of the Fipa plateau in 1893, traversed its whole extent in 1897 during a journey from Kala, the mission station on Lake Tanganyika, to Karambi, in the Awemba country, for the consecration of the vicar-apostolic of the Nyasa Mission. He describes the plateau as bare and sterile, though further north it struck Captain Ramsay as very fertile. On the return journey Mgr. Lechaptois took a more easterly route across the Saisi valley, where he found the vegetation much more

* Almost all the interior names which can be recognized in the south-eastern half of the continent belong to Abyssinia and Shoa, of which Fra Mauro shows a much better knowledge than his contemporaries, except in so far as he pushes them far too much to the south—almost to the southern verge of the continent as represented by him. Thus Mount Zuquala, in Shoa, appears, with other features in correct relation, in the portion of the map reproduced by Mr. Beazley as "South Africa." The "Cavo de Diab," which he considers to represent the southern point of Africa, occurs in connection with the fabulous islands of men and women placed by Polo between Persia and Africa, and by Conti near Sokotra. Sofala, again, occurs near Diab, north of Brava and Mombasa. Surely also "Garbin," which is considered a place on the west coast reached from Sofala, is nothing more than the Italian for "south-west."

luxuriant than in the valleys which run down to Tanganyika. The descent to the Rukwa plain, by the escarpment of the Shingamba range, proved very difficult. From above the plain had the appearance of a sea of vapour, and the climatic contrast experienced after making the descent was as great as that described by Ramsay (cf. *Journal*, vol. xiii. p. 72). The foot of the escarpment was now skirted in a northerly direction, the route here diverging but little from those of Wallace and Ramsay, though followed in the opposite direction. The ascent to the plateau was made a little west of the mission station of Rukwa. The lake, in its present restricted dimensions, was not visited, and the map in this section is chiefly based upon Mr. Wallace's survey. The routes of other visitors to its shores —Kerr-Cross, Wissmann, Nutt, and Ramsay—are, however, inserted, though that of Herr von Elpons, who is said to have reached the lake in 1897, is not shown. Dr. Langhans gives a note on the somewhat confused nomenclature of the Fipa country.

The Geodetic Survey of South Africa.—The report of the astronomer at the Cape of Good Hope for 1898 contains some information on the progress hitherto made with the geodetic survey of Rhodesia, first determined on at Mr. Gill's suggestion early in 1897. Field operations were resumed in May, 1898, after the close of the rainy season, the difference of longitude between Buluwayo and the Cape observatory being first determined by exchange of telegraphic signals, while astronomical latitude and azimuth were also determined at Buluwayo. A base-line of 11¾ miles was then measured backwards and forwards with the Jäderin apparatus, which was carefully compared with the Cape standards before and after. Theodolite work was also carried out at seventeen stations, at seven of which the astronomical latitude was determined. During the succeeding rainy season it was found that work could be carried on with advantage in the intervals between the rains. Field work for the delimitation of the boundary between Bechuanaland and German South-West Africa was commencced in November, 1898, by the commissioners of the two nations, Major Laffan and Lieut. Wettstein, both of whom had previously practised observations at the Cape observatory. As regards geodetic work in Africa as a whole, it is pointed out that the surveys now in operation or contemplated justify the expectation that arcs extending through the greater part of the length of the continent may be completed in the near future. Triangulation has already been set on foot to fill in the 140 miles still wanting to complete the chain from Cape Agulhas to Rietfontein; while by the agreement with Germany the demarcation of the boundary will be carried to about 21° 50′, and possibly further. It is also proposed before long to carry an arc of the meridian from the south of Rhodesia to Lake Tanganyika, while a hope is expressed that the German Government may continue the work to Uganda. Thence the way is now clear for a triangulation along the Nile to Alexandria, practically along the same meridian of 30° E. In recording the results, already published in the *Journal*, of the recent telegraphic determination of the longitude of Nkata bay on Lake Nyasa, Mr. Gill says that this has shown the previously accepted longitude was about 6 miles in error. This is not quite intelligible, for, as was pointed out by Captain Boileau in the paper read before the Society in April last, the new value is practically identical with that given in the map compiled from the observations of Lieuts. Rhoades and Phillips, and published last year in the *Journal*. Even the survey of Mr. James Stewart, published in 1883, gives a position differing by only about 3′ from that now fixed. The longitude of Umtali has also been fixed by signals exchanged with Captain Watherstone of the Anglo-Portuguese delimitation commission, the result obtained being 2h. 10m. 41·2s. E., or 32° 40′ 18″.

AMERICA.

The Geographic Board of Canada.—By an Order in Council of the Governor-General, dated December 18, 1897, a "Geographic Board" for Canada was constituted for the purpose of dealing, like the similar body in the United States, with the question of geographical nomenclature. The first annual report of the board, which has lately been issued, gives a sketch of the origin and history of that body, with a statement of the first results of its activity. As far back as 1889–90 endeavours were made to introduce a uniform system, based, as regards orthography, on the rules of our Society, into the various Government publications. In 1891, a list of over 1300 names relating to the north-west was drawn up, but the voluntary nature of the efforts deprived them of the authority necessary for success, so that little was effected until, partly owing to the action of the United States Board, the matter was taken up by Government, with the result above stated. A series of rules has already been drawn up by the board, of which the tenor of the most important is as follows: Especial weight is to be attached to priority, appropriateness, and euphony, especially the first, in the selection of names, and in the case of corruption the original forms are, as a rule, to be restored. The possessive form is to be avoided where possible, and when retained the apostrophe is to be dropped. Hyphens are not to be used between the parts of Indian names. The form "canyon" is to be used instead of "cañon," and "brook" is considered preferable to "creek" in describing small streams. The use of alternative names is to be discontinued where possible. As regards orthography, the Society's rules are adopted, but French names are to be spelt according to the rules of the French language. A list of decisions arrived at by the board is printed in the present report. The greater number refer to questions of variable spellings or duplicate names in common use, no attempt having been made to restore native names in cases where English names have been generally adopted, though the former are of course retained where possible. The following examples may be of interest: "Dawson" replaces "Dawson City" (the use of "city" or "town" as parts of names being deprecated), and Laberge the corrupted form Lebarge. Klondike is of course retained in place of Throndiuck, and Lewes (not Lewis) is used for the western headstream of the Yukon. "Browns creek" is adopted in indication that the distinguishing word is not an adjective, but the possessive form is dropped in the case of Arthur's seat. It may be doubted whether the last is well-judged, as the case stands apart from the ordinary use of the possessive in geographical names.

The Dune Floras of Lake Michigan.—An instructive study of the dune floras of Lake Michigan has recently been contributed by Henry Chandler Cowles, of the Hull Botanical Laboratory, to the *Botanical Gazette* published at Chicago (1899, Nos. 2–5). The subject is considered from the point of view of a practically new science, which has received the name of ecology, and is concerned with the mutual relations of plants and their environment, its object being to throw light on the modifications of plant-structure actually in progress as a result of changing conditions, and ultimately on the origin of plant-structures themselves. With the latter geography is of course not concerned, whereas the early stages of the inquiry, which are necessarily devoted to the investigation of the plant-formations of various localities, and the facts and laws of the distribution of characteristic species, are essentially geographic, and are the special subject of the paper now under review, the continuation of the study being reserved for a future paper. The dunes in question occur chiefly on the eastern and southern shores of Lake Michigan, being due to the action of the prevalent south-west and north-west winds. They attain their maximum development in the Dune Park region in the extreme south, active

dunes extending here as far as a mile inland, whereas elsewhere they are confined to a narrow belt fringing the shore. They are formed principally at the mouths of rivers, which on the Michigan coast tend in consequence to form small lakes near their mouths; but they are also conspicuous on projecting points of land, and even on high bluffs. The factors of most importance in determining the distribution of plants in the various dune associations are (1) light and heat; (2) wind; (3) soil; (4) water, *i.e.* the absence of a constant supply. These produce a composite effect on the vegetation, which shows both xerophytic and arctic structures. The writer considers the "plant societies" (*i.e.* groups of planes living together in common habitats and subjected to similar life conditions) represented in the Michigan dune region in the order of their development, beginning with the beach—the normal primitive formation—and passing in turn through the stationary beach dunes, the active or wandering dunes, and the arrested or transitional dunes, to the passive or established dunes, which constitute the majority in the region in question. Under these heads he deals with such phenomena as the formation of the dunes by the growth of plants, showing the species most fitted to lead to this result; the wandering of dunes as the conditions become too severe for the dune-forming plants; the encroachment of dunes on pre-existing floras and its results; and, lastly, the development of new floras, different on the windward or leeward slopes, as the rate of motion of the dunes becomes checked. Vegetation gets its first foothold at the base of lee-slopes about the outer margin of a dune complex, because of soil moisture and protection from wind. On the captured lee-slopes *Tilia Americana* rapidly forms forests, while on the windward slopes evergreens predominate. Oaks occur on inland dunes and southern slopes, and may follow pines when the shelter from cold winds becomes sufficient. As a contribution to the study of dunes generally the paper is of much value, by reason of the influence which the vegetation is shown to have in modifying the topography. A series of excellent photographs illustrates the various phenomena.

"Bureau Démographique" at Buenos Aires.—We have received a circular announcing the establishment, by decree of March 22, 1899, of a "Bureau Démographique" at Buenos Aires, charged in the first instance with the distribution of the results of the latest census of the republic, and, generally, with the publication, in a well-digested form, of all information obtainable relating to the movement of population and kindred phenomena in Argentina. It is proposed for this object to issue a bulletin, which will at first appear at irregular intervals, according as material is available, but subsequently, it is hoped, at three-monthly or even monthly intervals. The bulletin will be issued to all institutions which may agree to an exchange of publications, and, in addition, to all functionaries and institutions specially interested in the subjects dealt with.

Western Oaxaca.—At the Dover meeting of the British Association, Mr. O. H. Howarth described a journey in Western Oaxaca, Mexico. He said that the exploration of a portion of the state of Oaxaca, lying south and west between the capital city and the sea, became necessary in the latter part of last year, with a view to ascertain a possible route between the valley of Rio Minas, on the upper course of the Peñoles river, and a point on the Southern railway, without traversing the high mountain ridges extending between that valley and the city, on a direct line. The whole region is mountainous, being an expansion of the parallel main ranges of the Western Sierra Madre continued through the States of Guerrero and Oaxaca as far south as the Isthmus of Tehuantepec. The ridges, though approximately parallel, are of somewhat irregular conformation. They rise generally to an altitude of between 8000 and 9000 feet, being intersected by valleys of generally greater breadth than the cañons of the same range further north; these valleys, however,

descending to levels of from 3000 to 4000 feet, and of course to still lower elevations as the ranges approach the Pacific coast. The ranges are largely covered with varied foliage, and the prospect from any of the high ridges is of great magnificence. On leaving the city of Oaxaca in a westerly direction, an open rolling country, partly bare of vegetation, is traversed for a distance of 9 or 10 miles to the foothills of the nearest range, crossing the river Atoyac close to the city. A prominent object in the centre of this tract is the white dome of the unfinished monastery of Cuilapa, a remarkable structure of high architectural interest raised by Cortez during his occupation of the country, and said to have also comprised a residence for the Princess Malintzi or Malinche. The evidence of this is, however, doubtful, and may possibly have been based on the existence in one of the transepts of a massive inscribed gravestone on which the name of Cortez appears. Entering the range by the winding cañon of Zavaleta, a gradual ascent is made to a summit clothed with pine forests, where natural ice is prepared and stored on a singular native system. The trail issues above the little mountain village of San Pablo Cuatro Venados, or St. Paul of the Four Deer, one of the most remarkable sites of early settlement in Mexico. Following the ridge, another descent commences through a heavily timbered cañon to the mining village of San Miguel Peras, some 15 miles further. A mile beyond this is the meeting of two forks of the Rio Verde, and the usual uncertain nomenclature as to rivers and other local features is encountered. A second ascent to 9000 feet has then to be accomplished by exceedingly rough trails, succeeded by a descent into a valley of less depth, but falling gradually to the north and south of the point of crossing. On reascending from this, a summit is reached crowned by a native village known as Huitepec, occupied by a population of Indians whose language proved to be entirely distinct from any of the known dialects of the state, and apparently isolated. It possesses several peculiarities, and seems to be a solitary survival of one of the most ancient tongues of Central America. Immediately beyond this the geological formation changes suddenly, the next descent being entirely covered with vast irregular boulders of grey limestone, amongst which the threading of a trail with horses and pack-mules is a matter of extreme difficulty. Again a high ridge has to be traversed at an altitude equal to the previous ones, amongst alternations of pine and scrub-oak growth and open spaces of a long fine grass, with a variety of flowering plants. At some 6 or 7 miles beyond Huitepec the trail enters the head of an extremely steep cañon, the side of which it skirts with an available width of sometimes not more than a foot or 18 inches, this track being known as the Infiernillo, or "Little Infernal," a name which the traveller by it considers by no means inappropriate, especially in the season of rains, when the clayey surface becomes slippery with moisture. Finally, the trail leads out upon a fourth ridge, overlooking the attractive valley of Rio Minas, with its winding river, a last descent being now made to a level of 4200 feet. The few inhabitants of this country, a delightful one both in climate and fertility, are of a simple and hospitable disposition, and engaged, so far as they follow any pursuit at all, entirely in agricultural occupations, though surrounded by rich mineral formations. The general absence of animal life is noticeable, though the valleys abound with butterflies and other insects. Poisonous insects of all kinds, and also snakes, appear to be very rare; in fact, almost unknown. The difficulty of access from the well-populated valley of Oaxaca has no doubt contributed to the isolation of a district so inviting. Further down the course of the Peñoles river, where it issues westward, the valley divides to the north-west and south-east, and, without any great change of elevation in the former direction, trends towards the district capital of Nochistlan at a distance of about 35 miles,

and thence in an easterly course towards the line of the Southern railway at Parian, some 30 miles north of the city of Oaxaca. This latter approach has a good road, which, prior to the existence of the railway, would merely have led into the mountains again. It may be expected, however, that, slow as the Mexicans are to recognize or avail themselves of any advantages of communication, the better access from the north to these productive valleys may gradually lead to their occupation and development, when further explored under European auspices. The climatic conditions are similar to those of all the southern interior of Mexico, though, owing to the intersection of the country by long and lofty ridges, the rainfall during the wet season is somewhat greater. The journey here described was undertaken during the month of December last, when the atmospheric conditions are perhaps unrivalled in the world as to temperature and salubrity.

GENERAL.

A Health Exhibition for Travellers.—Under the auspices of Livingstone College—an excellent institution to which reference has already been made in our pages—and with the support of the Royal Geographical Society, an exhibition is to be held at the beginning of January which should prove of much interest and assistance to intending travellers, particularly those proceeding to tropical countries. The object of the Livingstone Exhibition—such is its official title—is the promotion of the health and comfort of travellers or residents in foreign countries by the display of such articles of outfit as are recommended by the best authorities as conducive to hygiene abroad. The provisional programme has been sent to us by Sir George Taubman-Goldie, who has consented to act as president, and who urges the importance of the objects the promoters have in view. The exhibition, which will be held in the St. Martin's Town Hall, will be open to the public from Monday, January 1, to Friday, January 5, inclusive, but exhibits must be delivered on Saturday, December 30. The chief promoter of the undertaking is Dr. C. F. Harford-Battersby, of Livingstone College, whose medical knowledge and personal experience of life in the most unhealthy regions of Africa entitle him to speak with authority on all points relating to tropical hygiene. A special section will be devoted to the chief requisites of explorers, while articles of outfit actually used by travellers will be another interesting exhibit. Points of importance to permanent residents abroad, such as house-building and sanitation, will also be illustrated. Apart from conversaziones of general interest, the evening programme includes demonstrations by the London School of Tropical Medicine. A catalogue will be issued, which may, it is hoped, be of permanent use as a guide to outfit.

The Methods of Military Geography.*—In a recently published brochure, Prof. O. Barré presents an introduction to the study of Central Europe, as an indication of the methods which he thinks should be adopted by those who devote their attention to military geography. His aim is, in fact, to advocate the adoption by military geographers of modern scientific methods as opposed to the purely literary and descriptive side of the study which until lately found favour. In the introduction he gives instances of the erroneous conceptions prevalent owing to the want of study of the "Wherefore" of Physical features, and insists that a knowledge of at least the conclusions of geologists is quite within the range of the necessary qualifications of an officer. Prof. Barré then proceeds to sketch the broad principles of the science of geomorphology, treating in turn of the nature of the materials of the soil, their architectural arrangement, and the sculpture superimposed on this architecture by external agents. The author next applies these

* 'La Géographie Militaire et les Nouvelles Méthods Géographiques.' Par O. Barré. Paris: Berget Levrault et Cie. 1899.

principles to an examination of the geographical evolution of Central Europe, through the four great epochs of geological time. The subject is clearly and concisely dealt with, and though presenting, strictly speaking, no novelty of treatment, the paper is useful as showing the interest which attaches to the study of physical geography taken up on scientific lines.

Ibn Batuta's Travels in Urdu.—We have received a first instalment of a translation into Urdu, in the vernacular character, of Ibn Batuta's travels in the East, by Maulvi Muhammad Husain, District Judge at Firozpur. The new version is, of course, mainly intended for oriental readers, the translator's chief motive being to lay before his Mohammedan fellow-countrymen "an example of untiring energy and unparalleled enterprise" on the part of one of their own faith. He has, therefore, taken up first, as more nearly concerning his prospective readers, the second section of the work, which deals with Ibn Batuta's travels in India, Ceylon, and neighbouring countries. The original Arabic text of Ibn Jazzi of Granada, from which the present version has been made, has never been translated into English in full, Dr. Lee having had access only to an abstract; though it was used by the French editors, MM. Defrémery and Sanguinetti. Maulvi Muhammad has been at much pains to elucidate the text by identification of places and historical notes, the chief points thus dealt with being summarized in the English introduction. He there calls attention to Ibn Batuta's account of the great famine which prevailed in India during the time of his visit, as showing to what an extent the sufferings from such calamities are mitigated in our own day. The writer's personal knowledge of the country should make the explanatory matter of value to such students as are able to read Urdu in the original character.

Educational Map Slides.—Mr. B. B. Dickinson, M.A., and Mr. A. W. Andrews, M.A., have for some time past given their attention to the production of a series of lantern map slides suitable for educational purposes. As the result of their labours, teachers and lecturers, instead of having to carry about with them large unwieldy maps, can now obtain a perfect series of political, physical, and commercial map slides in the compass of a small box. These slides have been prepared with great care; the price is two shillings each. They contain quite sufficient detail for lecture and educational purposes, and there can be no question as to the advantage they have, owing to their portable form, over the maps which have heretofore been in general use.

Death of Dr. Georg Kolb.—We regret to record the death of the young German traveller, Dr. Georg Kolb, well known for his journey to Mount Kenya and ascent to the foot of the final pinnacle of the mountain, in 1894–96. Dr. Kolb had lately returned to East Africa with the object of exploring the country east of Lake Rudolf. He had reached the shores of the lake, but there met his death from the attack of a rhinoceros. Details as to the previous results of his journey are not yet known.

CORRESPONDENCE.

On the Advance and Retreat of Sea-ending Glaciers.

In Mr. Klotz's very interesting "Notes on Glaciers of South-east Alaska," printed in the November number of the *Geographical Journal*, no explanation is suggested for the remarkable concurrent advance of the Brady glacier and retreat of the neighbouring glaciers that in Vancouver's time filled Glacier bay; the advance of the one being 5 miles, the simultaneous retreat of the others 45 miles. An

examination of the map shows that these phenomena confirm the observations on sea-ending glaciers recorded by me in my books on Spitsbergen and others since made in Tierra del Fuego, but not yet published. Though no soundings are given, the text implies that Glacier bay is relatively deep, whilst the head of Taylor bay was shallow. A moraine-bearing glacier ending in a shallow bay tips its moraine over its snout, and so, by raising the floor of the bay, forms a bottom on which it advances; this advance is continued until the glacier-front is cut off from the water by a belt of moraine. In a deep bay, where the glacier front ends in deep water and is not aground, no such advance is provoked. The Brady glacier, as the photograph on p. 533 shows, brings down a good deal of moraine. In its more vigorous days, no doubt the supply of ice brought down by it would have carried it far south of its then ice-front if there had been ground at sea-level for it to travel on; but there was not, so the ice broke off and floated away, dropping moraine into the water. As the water was filled up, the ice advanced over the moraine, and this it would do even though the supply of ice diminished, provided that the diminution did not reach the critical point where the glacier would be forced to retreat even from a dry bed at sea-level. When, by filling up the bay before it, the glacier had reached forward to the full length which the supply of ice brought down by it could stretch to on a dry bed (or rather a bed but little below sea-level), a terminal moraine would be formed around the snout, and this moraine would ultimately rise above sea-level; but the glacier streams would continually wash it about and rearrange its materials, turning it into and extending it as a riverine delta, such as the photograph shows. These changes might all go on at a time when the supply of ice was diminishing, and when, consequently, neighbouring glaciers ending in deeper water were rapidly retreating.

MARTIN CONWAY.

Patagonia.

In the discussion which followed the reading of Don Francisco Moreno's very valuable and interesting paper on Patagonia, it was suggested the name is derived from the Quichua *Pata*, "a terrace," and *cerna*, the plural particle, meaning "the land of terraces." The Spanish discoverers, however, called the land "Tierra de los Patagones," on account of the huge Indians there, and their immense feet (*patas*). Patagon means a man with big feet, just as Oregon means a man with big ears, alluding to that physical peculiarity of the natives found in Oregon. Similarly, Narigon means a man with a big nose.

A. M. ROBINSON.

MEETINGS OF THE ROYAL GEOGRAPHICAL SOCIETY, SESSION 1899-1900.

First Ordinary Meeting, November 13, 1899.—Sir CLEMENTS MARKHAM, K.C.B., President, in the Chair.

ELECTIONS.—*G. T. M. Bridges (Lieut. R.H.A.); Henry Hope Buswell; Major W. J. Bythell, R.E.; Captain J. Walter Maxwell Carroll (Queensland Artillery); Thomas William Dampier-Bide; Albert Thomas Frampton; William Gordon, M.D.; Rev. Henry W. Hutchinson; Isaac S. McDougall; Dixon Provand; Major A. R. Stuart, R.A.; Hon. A. H. Hanbury Tracy; Captain Clifton Vincent Reynolds Wright (South Wales Borderers).*

The Papers read were:—

"Opening Address." By the President. "Travels in Bokhara." By Willy Rickmer Rickmers."

GEOGRAPHICAL LITERATURE OF THE MONTH.

Additions to the Library.

By HUGH ROBERT MILL, D.Sc., *Librarian*, R.G.S.

THE following abbreviations of nouns and the adjectives derived from them are employed to indicate the source of articles from other publications. Geographical names are in each case written in full:—

A. = Academy, Academie, Akademie.
Abh. = Abhandlungen.
Ann. = Annals, Annales, Annalen.
B. = Bulletin, Bollettino, Boletim.
Com. = Commerce.
C. Rd. = Comptes Rendus.
Erdk. = Erdkunde.
G. = Geography, Geographie, Geografia.
Ges. = Gesellschaft.
I. = Institute, Institution.
Iz. = Izvestiya.
J. = Journal.
k. u. k. = kaiserlich und königlich.
M. = Mitteilungen.
Mag. = Magazine.
Mem. = Memoirs, Mémoires.
Met. = Meteorological.
P. = Proceedings.
R. = Royal.
Rev. = Review, Revue.
S. = Society, Société, Selskab.
Sitzb. = Sitzungsbericht.
T. = Transactions.
V. = Verein.
Verh. = Verhandlungen.
W. = Wissenschaft, and compounds.
Z. = Zeitschrift.
Zap. = Zapiski.

On account of the ambiguity of the words *octavo*, *quarto*, etc., the size of books in the list below is denoted by the length and breadth of the cover in inches to the nearest half-inch. The size of the *Journal* is 10 × 6½.

A selection of the works in this list will be noticed elsewhere in the "Journal."

EUROPE.

Alps. **Baedeker.**

The Eastern Alps, including the Bavarian Highlands, Tyrol, Salzburg, Upper and Lower Austria, Styria, Carinthia, and Carniola. Handbook for Travellers by Karl Baedeker. Ninth Edition. Leipsic: K. Baedeker; London: Dulau & Co., 1899. Size 6½ × 4½, pp. xxvi. and 568. *Maps, Plans, and Panoramas. Price* 10*s.* Two copies, *one presented by the Editor, the other by Messrs. Dulau & Co.*

Alps. *Petermanns M.* **45** (1899): 204–214. **Diener.**

Grundlinien der Struktur der Ostalpen. Von Prof. Dr. C. Diener. *With Map.*

Alps—Flora. *Natural Sci.* **15** (1899): 109–113. **Bennett.**

The Flora of the Alps. By Prof. Alfred W. Bennett.

Austria—Bohemia. *Petermanns M.* **45** (1899): 73–82, 113–123, 155–165. **Langhans.**

Die deutsch-tschechische Sprachgrenze in Nordböhmen. Von Paul Langhans. *With Maps.*

Baltic Islands. *Q.J. Geol. S.* **55** (1899): 305–326. **Bonney and Hill.**

Relations of the Chalk and Drift in Möen and Rügen. By Prof. T. G. Bonney, D.Sc., and the Rev. Edwin Hill. *With Sections.*

Prof. Bonney brings forward a new theory to explain the remarkable relations between the chalk and the boulder clays of the islands in the western Baltic.

Baltic Sea. **Rein.**

Die physikalischen und biologischen Eigenthümlichkeiten der Ostsee, von Prof. Rein. (Separat-Abdruck aus den Sitzungsberichten der Niederrhein. Gesellschaft für Natur- u. Heilkunde zu Bonn. 1899.) Size 8½ × 5½, pp. 4. *Presented by the Author.*

Belgium—Canals. *P.I. Civil Engineers* **136** (1899): 282–306. **Vernon-Harcourt.**

The Brussels International Congress on Navigation of 1898; the Bruges Ship Canal; and New Works at Ostend and Antwerp. By L. F. Vernon-Harcourt. *With Plates.*

Channel Islands—Jersey. *Quarterly J.R. Meteorolog. S.* **25** (1899): 203–206. **Yorke.**

Climate of Jersey. By the Rev. H. W. Yorke.

Denmark—Bornholm. *Deutsche Rundschau G.* **21** (1899): 343–346. **Gebeschus.**
Bilder von Bornholm. Von J. Gebeschus. *With Illustrations.*

France—Provence. *Blackwood's Mag.* **166** (1899): 407–416. **Lynch.**
In Provence. By Hannah Lynch.

France—Southern. *B.S.G. Lille* **32** (1899): 153–161. **Descamps.**
Villages Arabes en France. Par M. Auguste Descamps.

The paper gives an account of the Arab colonists who settled in France after the battle of Poitiers, when the Arab invasion was checked by the victory of Charles the Hammer, and of the Moorish refuges who sought shelter in France when driven out of Spain in 1610. Both of these have left clearly recognizable traces in the districts which they inhabited.

Germany—Prussia. *Meteorolog. Z.*, 16 (1899): 310–312. **Polis.**
Ergebnisse der Temperaturbeobachtungen zu Aachen 1838–1897. Von Dr. P. Polis.

Germany—Prussia. ———
Die Stadt Berlin, Festschrift der Stadtgemeinde, für die Teilnehmer am vii. Internationalen Geographen-Kongress, Berlin, 1899. Size 6½ × 4½, pp. x. and 372. *Illustrations. Presented by Dr. J. Scott Keltie.*

Germany—Prussia. **Baedeker.**
Berlin und Umgebungen. Handbuch für Reisende von K. Baedeker. Zehnte Auflage. Leipzig: Karl Baedeker, 1898. Size 6½ × 4½, pp. x. and 218. *Maps and Plans. Price* 3*m. Presented by Messrs. Dulau & Co.*

Germany—Prussia. **Polis.**
Die Niederschlagsverhältnisse der Mittleren Rheinprovinz und der Nachbargebiete. Von Dr. P. Polis.—Forschungen zur deutschen Landes- und Volkskunde . . . herausgegeben von Dr. A. Kirchhoff. Zwölfter Band, Heft 1. Stuttgart: J. Engelhorn, 1899. Size 9½ × 6½, pp. 96. *Maps.*

Holland. *Tijds. K. Ned. Aard. Genoots. Amsterdam* **16** (1899): 277–292. **Sasse.**
Komen er "Franken" voor in Drente of "Kelten" (Broca)? Bijdrage tot de Ethnographie van Noderland. Door Dr. J. Sasse Azn.

Holland. *Tijds. K. Ned. Aard. Genoots. Amsterdam* **16** (1899): 293–306. **Winkel.**
Franken in Drenthe (?). Door Dr. J. te Winkel.

Holland—Zuyder Zee. *B.S.G. Lille* **32** (1899): 34–44. **Vermersch.**
Le Zuyderzée. Projets de desséchement. Par M. le Docteur Albert Vermersch. *With Maps.*

Hungary. *Jahrb. Ungar. Karpathen-V.* **26** (1899): 1–20. **Karoliny.**
Die Klamm im Grossen Sokol. Von Michael Karoliny. *With Plates.*

Iceland. *P. Yorkshire Geolog. and Polytechnic S.* **13** (1899): 449–454. **Fennell.**
Notes on some Physical Features in Iceland. By C. W. Fennell. *With Plate.*

Iceland. **Collingwood and Stefansson.**
A Pilgrimage to the Saga-Steads of Iceland. By W. G. Collingwood & Jón Stefánsson, PH.D. Ulverston: W. Holmes, 1899. Size 11½ × 9, pp. x. and 188. *Map and Illustrations.*

The preface states: "This is a picture-book to illustrate the Sagas of Iceland. It is intended to supply the background of scenery which the ancient dramatic style takes for granted." The illustrations are sketches, some of them coloured, not photographs.

Italy. *Rev. Scientifique* **12** (1899): 33–40. **Nourse.**
Les pêcheries de la Vénétie. Par M. Thorndike Nourse. *With Illustrations.*

Mediterranean. ———
The Mediterranean Pilot. Vol. iii., comprising the Adriatic Sea, Ionian Islands, the Coasts of Albania and Greece to Cape Malea, with Cerigo Island. Also the Gulfs of Patras and Corinth. Third Edition. London: J. D. Potter, 1899. Size 9½ × 6, pp. xxiv. and 510. *Index Charts. Price* 4*s. Presented by the Hydrographer, Admiralty.*

Mediterranean—Crete. ———
Turkey, No. 2 (1899). Report by Her Majesty's Commissioner in Crete on the Provisional British Administration of the Province of Candia. London: Eyre & Spottiswoode, 1899. Size 18½ × 8½, pp. xii. *Price* 2*d.*

Mediterranean—Malta. **Fremantle.**

Copy of a Despatch addressed to the Secretary of State for the Colonies by Sir Arthur Lyon Fremantle, late Governor of Malta, dated December 29, 1898, on the Political Condition of Malta; and of all recent Correspondence relative to the same. London: Eyre & Spottiswoode, 1899. Size 13½ × 8½, pp. 42.

Correspondence relative to the opposition in Malta to the use of English in the law-courts on an equality with Italian.

North Europe—Heaths. *Mém. S.R. Antiquaires du Nord* (1898): 199–228. **Sarauw.**

Les bruyères préhistoriques des pays baltiques, d'après les observations faites dans des tumulus de l'époque paienne. Par Georg F. L. Sarauw, traduit par Eug. Beauvois. *With Map and Illustrations.*

Norway. **Lees.**

Peaks and Pines. Another Norway book. By J. A. Lees. London: Longmans & Co., 1899. Size 8 × 5½, pp. xii. and 378. *Illustrations. Price 6s. Presented by the Publishers.*

A very bright, popular sketch of a holiday trip in the wilder parts of Norway.

Rumania. **Lahovari.**

Marele Dicționar Geografic al Romîniei . . . de George Joan Lahovari. Vol. ii. Fasc. iva. Constanța—Cuculuĭ (Valea-). Bucuresți: J. V. Socecŭ, 1899. Size 13 × 10, pp. 601–800.

Russia. *Travel* 4 (1899): 214–221. **Francis.**

Notes of a Tour in Russia. Down the Volga, across the Caucasus, Tiflis, and the Crimea. By the Rev. A. Francis. *With Illustrations.*

Russia—Libau. *J.R. United Service I.* 43 (1899): 890–899. ———

The Kaiser Alexander III. Harbour at Libau. *Résumé* of an article in the 'Mittheilungen aus dem Gebiete des Seewesens,' from the "Morskói Sbórnik." *With Maps.*

Scandinavia—Glaciers. *B. Geolog. I. University Upsala* 4 (1898): 45–78. **Westman.**

Beobachtungen über die Gletscher von Sulitelma und Åhmajalos. Von J. Westman. *With Map and Illustrations.*

On the icefields and glaciers inland from Bodö, on both sides of the boundary between Norway and Sweden.

Scandinavia—Land-movements. **Geer.**

Om den Senkvartära Landhöjningen kring Bottniska Viken. Af Gerard de Geer.—Sveriges Geologiska Undersökning. Ser. C, No. 178. Stockholm: P. A. Norstedt & Söner, 1899. Size 9 × 6, pp. 28. *Map.*

On the rising or sinking of the coasts of the Gulf of Bothnia.

Sweden. **MacGregor.**

Trade of Stockholm and the Eastern Coast of Sweden for the year 1898. Foreign Office, Annual No. 2317, 1899. Size 10 × 6½, pp. 44. *Price* 2½*d.*

Sweden—Jemtland. **Högbom.**

Om Ragundadalens Geologi (Mit einem Résumé in Deutscher Sprache). Af A. G. Högbom.—Sveriges Geologiska Undersökning. Ser. C, No. 182. Stockholm: P. A. Norstedt & Söner, 1899. Size 9 × 6, pp. 124. *Maps and Illustrations.*

Sweden—Meteorology. *K. Svensk. Vet.-A. Handlingar* 31 (1898): 1–73. **Hamberg.**

La pression atmosphérique moyenne en Suède 1860–1895. Par H. E. Hamberg. *With Maps.*

The plates showing monthly mean isobars include the whole Scandinavian peninsula. The value represented is the monthly mean of observations at 8 a.m., 2 p.m., and 9 p.m. daily, reduced to 0° C. and sea-level.

Sweden—Nordmark. **Petersson.**

Geologisk Beskrifning öfver Nordmarks Grufvors Odalfält. Af Walfr. Petersson.—Sveriges Geologiska Undersökning. Ser. C, No. 162. Stockholm, 1896. Size 9 × 6, pp. 60. *Plates.*

Sweden—Norrland. ———

Praktiskt Geologiska Undersökningar inom Vesternorrlands län med Bidrag af Länets Hushållningssällskap utförda genom Sveriges Geologiska Undersökning. II. Berggrunden.—Sveriges Geologiska Undersökning. Ser. C, No. 177. Stockholm: P. A. Norstedt & Söner, 1899. Size 12½ × 10, pp. 60. *Maps. Presented by the Swedish Geological Survey.*

Sweden—Rödö. **Holmquist.**

Om Rödöområdets. Rapakivi och Gångbergarter. Mit einem Résumé in Deutscher Spache. Af P. J. Holmquist.—Sveriges Geologiska Undersökning. Ser. C, No. 181. Stockholm: P. A. Norstedt & Söner, 1899. Size 9 × 6, pp. 118. *Map and Plates.*

The geology of the island of Rödö and its surroundings.

Switzerland. **Baedeker.**

Switzerland and the Adjacent Portions of Italy, Savoy, and Tyrol. Handbook for Travellers by Karl Baedeker. Eighteenth Edition. Leipsic: R. Baedeker; London: Dulau & Co. 1899. Size 6½ × 4½, pp. xxxiv. and 512. *Maps, Plans, and Panoramas. Price 8s. Two copies, one presented by the Editor, the other by Messrs. Dulau & Co.*

Switzerland—Lac de Champex. *Alpine J.* 19 (1899): 544–548. **Yeld.**

The Lac de Champex. By the Editor.

Switzerland—Zermatt. **Whymper.**

The Valley of Zermatt and the Matterhorn. A Guide by Edward Whymper. Third edition. London: John Murray, 1899. Size 7½ × 5, pp. xiv. and 224. *Maps and Illustrations. Price 3s. Presented by the Author.*

United Kingdom. **Taylor.**

The British Isles through an Opera Glass. By Charles M. Taylor, Junr. Philadelphia: G. W. Jacobs & Co., 1899. Size 8 × 5½, pp. 320. *Illustrations. Presented by the Author.*

Notes of a rapid tour.

United Kingdom—Commercial Geography. **Herbertson.**

Commercial Geography of the British Isles. By A. J. Herbertson, PH.D. London and Edinburgh. W. & R. Chambers, 1899. Size 7 × 5, pp. 140. *Maps. Price 1s. Presented by the Publishers.*

This is a careful and accurate epitome of the Commercial Geography of the United Kingdom; it deals with the physical geography in relation to the resources of the country in minerals and agriculture. The distribution of manufacturing centres is studied, the railway and canal systems described, and a good account given of the imports and exports of the country as a whole.

United Kingdom—England. **Murray.**

A Handbook for Residents and Travellers in Wilts and Dorset. Fifth Edition. London: John Murray, 1899. Size 7 × 5, pp. xlviii., 712. *Maps and Plans. Price 6s. Presented by Mr. Murray.*

United Kingdom—England. **Peek.**

Rousdon Observatory, Devon. Vol. xv. Meteorological Observations for the year 1898, made under the superintendence of Sir Cuthbert E. Peek, Bart. London, 1899. Size 11 × 9, pp. 40. *Plate.*

United Kingdom—England. *J.R. Agricultural S.* 10 (1899): 429–485. **Whitehead.**

A Sketch of the Agriculture of Kent. By Charles Whitehead. *With Maps and Illustrations.*

United Kingdom—England. ———

Antient Southampton. Catalogue of Works of Art belonging to William Burrough Hill, Southampton, 1897. Size 9½ × 6, pp. 32. *Presented by W. B. Hill, Esq.*

Catalogue of a collection of pictures of Southampton and neighbourhood, including many of the ancient buildings.

United Kingdom—England. ———

London Topographical Society. Report of the Organizing Committee, submitted at the First Annual Meeting of the Society, . . . March 9, 1899. Size 8½ × 5½, pp. 16. Illustrated Topographical Record of London. First Series. Issued by the Organizing Committee of the London Topographical Society, 1898. Size 11½ × 9, pp. [52]. *Illustrations.*

Drawings, usually accompanied by plans and descriptive notes, of old portions of London which have been rebuilt or destroyed.

United Kingdom—England. **Baddeley.**

Thorough Guide Series. The Peak District of Derbyshire and neighbouring Counties. By M. J. B. Baddeley, B.A. Seventh Edition, Revised and enlarged. London: Dulau & Co., 1899. Size 6½ × 4½, pp. xvi., 16, and 158. *Maps. Price 3s. Presented by the Publishers.*

United Kingdom—England. **Cole.**

P. Yorkshire Geolog. and Polytechnic S. **13** (1899): 400–401.

The Distribution of Moorlands in the East of Yorkshire, as explained by the Glacial History of the county. By Rev. E. Maule Cole.

The author points out that the moorlands of the vale of York occur mainly on the north side of the valley, an arrangement which he traces to the action of the glaciers of the Ice age in sweeping away the soil from the northern side of the valley and accumulating morainic matter on the southern.

United Kingdom—Rainfall. **Symons and Wallis.**

British Rainfall, 1898. On the Distribution of Rain over the British Isles during the year 1898, as observed at more than 3000 Stations in Great Britain and Ireland, with articles upon various branches of Rainfall work. Compiled by G. J. Symons, F.R.S., and H. Sowerby Wallis. London: E. Stanford, 1899. Size 9 × 6. pp. 68 and 252. *Maps and Illustrations. Price* 10*s*. *Presented by G. J. Symons, Esq.*

In addition to the usual statistics, this issue contains a chapter on self-recording rain-gauges, with illustrations of the chief patterns, notes on the fluctuation of rainfall for 175 consecutive years, an account, with map, of a remarkable rain-storm at Angerton, Northumberland, on September 7, 1898, and several other valuable articles.

ASIA.

Arabia. **Landberg.**

Die Südarabische Expedition der kaiserlichen Academie der Wissenschaften in Wien und das Vorgehen des Prof. Dr. David Heinr. Müller actenmässig dargestellt von Dr. C. Graf Landberg. München: H. Lukaschik, 1899. Size 8½ × 6, pp. xvi. and 186. *Presented by the Publisher.*

Asia—Exploration. *Deutsche Rundschau G.* **21** (1899): 444–459. **Jüttner.**

Fortschritte der geographischen Forschungen und Reisen im Jahre 1898. 1. Asien. Von Dr. J. M. Jüttner.

Asia—Land Routes. *J.R. United Service I.* **43** (1899): 985–1016. **Bell.**

The Highway of the Nations: *i.e.* The Turko-Persic-Indian Commercial Route between Europe and Asia, and the Considerations Influencing its Alignment. By Colonel Mark Bell, C.B. *With Map.*

On the various possible land-routes to India.

Asia—Railway project. *Nineteenth Century* **46** (1899): 484–492. **Moreing.**

An all-British Railway to China. By C. A. Moreing. *With Map.*

Advocates a railway from Egypt across the north of Arabia and the south of Persia to Karachi, and a continuation of the Indian railway system from Mandalay to the upper Yangtse, and down the Yangtse valley to Shanghai.

Ceylon. **Grinlinton.**

Administration Reports, 1898. Part ii. Scientific. Survey Department. Report of Mr. F. H. Grinlinton, Surveyor-General. Size 13½ × 8½, pp. 24. *Maps and Plate. Presented by the Author.*

Ceylon. **Leclercq.**

Note sur le plus ancien entrepôt de commerce. Par Jules Leclercq. (Extrait des *Bull. de l'Acad. roy. de Belgique*, 3ᵉ sér., t. xxxvii., 2ᵐᵉ partie, No. 1, pp. 58–64, 1899.) Size 9 × 6. *Presented by the Author.*

The oldest entrepôt is Point de Galle.

Ceylon. *J. Ceylon Br. R. Asiatic S.* (1898) **15** (1899): 213–290. **Vos.**

Monumental Remains of the Dutch East India Company in Ceylon. By F. H. de Vos. *With Plates.*

China. *Fortnightly Rev.* **66** (1899): 448–463. **Gundry.**

The Yangtse Region. By R. C. Gundry.

China—Canton. **Mansfield.**

Trade of Canton for the Year 1898. Foreign Office, Annual No. 2324, 1899. Size 9½ × 6, pp. 12. *Price* 1*d*.

China—Che-kiang. *Questions Dipl. et Colon.* **8** (1899): 22–28. **Fauvel.**

La Province du Tché-Kiang (Chine). Par A. A. Fauvel.

On the resources of Chekiang and the probable political destiny of that state in the "partition of China."

China—Che-kiang. *L'Esplorazione Com.* **14** (1899): 267–292. **Pini**

Il Ce-Kiang. Studio Geografico-economico del Dr. Mario Carli. Por E. Pini.

China—Chinkiang. **Scott.**

Trade of Chinkiang for the year 1898. Foreign Office, Annual No. 2325, 1899. Size 9½ × 6, pp. 16. *Price* 1*d.*

China—Hankow. **Warren.**

Trade of Hankow for the year 1898. Foreign Office, Annual No. 2303, 1899. Size 10 × 6½, pp. 10. *Price* 1*d.*

China—Nankin. **Gaillard.**

Variétés Sinologiques No. 16. Nankin d'alors et d'aujourd'hui. Plan de Nankin (Décembre 1898.) Par le P. Louis Gaillard, S. J. Chang-hai: Imp. de la Mission Catholique, 1899. Size 10 × 6½, pp. 4. *Plan. Presented by the Author.*

China—Shanghai. **Brenan.**

Trade of Shanghai for the year 1898. Foreign Office, Annual No. 2318, 1899. Size 10 × 6½, pp. 16. *Price* 1*d.*

China—Shantung. **Hesse-Wartegg.**

Schantung und Deutsch-China, von Kiautschou ins Heilige Land von China und vom Jangtsekiang nach Peking im Jahre 1898. Von Ernst von Hesse-Wartegg. Leipzig: J. J. Weber, 1898. Size 10½ × 7½, pp. vi. and 294. *Maps and Illustrations.*

Notes of a visit in 1898.

China—Trade. ———

China: Imperial Maritime Customs. I. Statistical Series, Nos. 3 and 4. Returns of Trade and Trade Reports for the year 1898. Part ii.—Reports and Statistics for each Port. With Report on Foreign Trade of China, and Index to Annual Trade Reports, 1893–97. Shanghai; London: P. T. King & Son, 1899. Size 11 × 9, pp. xiv. and 714. *Maps and Diagrams. Presented by the Inspector-General of Chinese Customs.*

Japan—Climate. *J.G. Tokyo G.S.* **11** (1899): 347–354. **Nakagawa.**

On the Climatological Division of the Japanese Islands. By Genzaburō Nakagawa. [In Japanese.]

Japan—Formosa. *J.G. Tokyo G.S.* **11** (1899): 264–274. **Ishii.**

Geological Exploration in Formosa. By Yamajiro Ishii. [In Japanese.]

Japan—Formosa. *J.G. Tokyo G.S.* **11** (1899): 179–193. **Ishii.**

Geography of Formosa on its Administration. By Yamajiro Ishii. [In Japanese.]

Japan—Formosa. *J.G. Tokyo G.S.* **11** (1899): 338–346, 428–433. **Torii.**

Aborigines of Southern Formosa. By Ryōzō Torii. [In Japanese.]

Japanese Race. *T. Asiatic S. Japan* **25** (1897): 1–31. **Dooman.**

The Origin of the Japanese Race. By the Rev. I. Dooman.

Malay Archipelago—Borneo. **Easton.**

Tijds. K. Ned. Aard. Genoots. Amsterdam **16** (1899): 245–258.

Voorloopige mededeeling over de Geologie van het Stroomgebied der Kapoeasrivier in de Westerafdeeling van Borneo. Door N. Wing Easton. *With Map.*

Malay Archipelago—Borneo. *Mission Field* **44** (1899): 300–304. **Gocher.**

Four Hundred Miles in Sarawak. By the Rev. H. P. Gocher, M.A. *With Illustration.*

Malay Archipelago—Java. **Gennep.**

Tijds. K. Ned. Aard. Genoots. Amsterdam **16** (1899): 259–276.

Opmerkingen naar aanleiding van Dr. J. H. F. Kohlbrugge's 'Geographische Beschrijving van het Jang-Gebergte (Argopoero) op Java.' Door J. L. van Gennep.

Malay Archipelago—Java. **Ijzerman.**

Tijds. K. Ned. Aard. Genoots. Amsterdam **16** (1899): 307–334.

Over Boro-Boedoer. Door J. W. Ijzerman. *With Illustrations.*

Malay States—Selangor. **Rodger.**

Selangor Administration Report for the Year 1898. By J. P. Rodger. Kuala Lumpur, 1899. Size 13½ × 8½, pp. 46.

Persia. *Imp. and Asiatic Quarterly Rev.* **8** (1899): 284–313. **Lobb.**
The Coming Struggle for Persia. By R. Popham Lobb. *With Map.*

Philippine Islands. *Export* **21** (1899): 469–470. ——
Die wirthschaftliche Zukunft der Philippinen.

Philippine Islands. *J.G. Tokyo G.S.* **11** (1899): 210, 292, 361, 439. **Ogawa.**
Philippine Islands. By Jakudzi Ogawa. [In Japanese.]

Route to India. *Scottish G. Mag.* **15** (1899): 462–470. **Skrine.**
From London to Karachi in a Week. By Francis H. Skrine. *With Map.*
Suggestion for a mail route to India by uniting the Russian railway at Kushk with the Indian system at Chaman by a new line of 438 miles.

Russia—Caucasus. *Rev. G.* **45** (1899): 15–36, 94–123. **Baye.**
Au nord de la chaîne du Caucase. Souvenirs d'une mission. Par Baron de Baye. *With Illustrations.*

Russia—Caucasus—Ushba. *Alpine J.* **19** (1899): 524–536. **Rickmers.**
Ushba. By W. Rickmer Rickmers.

Siam. *Mouvement G.* **16** (1899): 409–413. ——
L'avenir du Siam (Troisième article). *With Map.*

Trans-Siberian Railway. *Contemporary Rev.* **76** (1899): 261–271. **Durban.**
The Trans-Siberian Railway. By W. Durban.

AFRICA.

Africa—Anthropology. **Weule.**
Der afrikanische Pfeil. Eine anthropogeographische Studie. Von Dr. Karl Weule. Leipzig: O. Schmidt, 1899. Size 9 × 6, pp. 64. *Plates. Presented by the Author.*
On the geographical distribution of different forms of arrows in Africa.

Africa—Historical. *Deutsche Rundschau G.* **21** (1899): 337–343. **Rumpe.**
Afrikas Angliederung an die europäische Culturwelt. Von Dr. Rob. Rumpe.
On the relations between Europe and Africa since the time of Bartholomew Diaz.

Africa—Zoogeography. *G.Z.* **5** (1899): 522–530. **Hesse.**
Die Ausbreitung des Sandflohs in Afrika. Ein tiergeographischer Versuch. Von P. Hesse.

Algeria. **Galland.**
Excursion à Bou-Saada et M'Sila. Racontée par De Galland. Paris: P. Ollendorff [1899]. Size 8½ × 11½, pp. 102. *Map and Illustrations.*
Gracefully illustrated notes of travel.

Algeria. **Hay-Newton.**
Trade of Algeria for the year 1898. Foreign Office, Annual No. 2302, 1899. Size 10 × 6½, pp. 38. *Price* 2½*d.*

Algeria. *Renseignements Colon., Comité l'Afrique Française* **3** (1899): 48–56. **Mercier.**
L'expansion de la France dans le sud Algérien. Par M. Gustave Mercier.

Algeria—Sahara. *B. Comité l'Afrique Française* **9** (1899): 176–178. ——
La mission Foureau-Lamy. *With Map.*

British Central Africa. **Sharpe.**
Trade and General Condition of British Central Africa Protectorate for the year 1898–99. Foreign Office, Annual No. 2327, 1899. Size 10 × 6½, pp. 36. *Price* 1½*d.*

British East Africa. **Macdonald.**
Africa, No. 9 (1899). Report by Lieut.-Colonel Macdonald, R.E., of his expedition from the Uganda Protectorate, May 2, 1898, to March 5, 1899. London: Eyre & Spottiswoode, 1899. Size 13½ × 8½, pp. 44. *Price* 4½*d.*

British East Africa—Ruwenzori. **Tucker.**
Toro. Visits to Ruwenzori "Mountains of the Moon." By the Right Rev. A. R. Tucker, D.D. London: Church Missionary Society, 1899. Size 8 × 9, pp. 52. *Map and Illustrations. Price* 1*s.* 6*d. Presented by the Church Missionary Society.*

British East Africa—Uganda. **Macdonald and Austin.**

Journeys to the North of Uganda. By Colonel J. R. L. Macdonald and Major H. H. Austin. From the *Geographical Journal* for August, 1899. Size 10 × 6½, pp. 28. *Map and Illustrations.*

British South Africa. **Gill.**

Report of Her Majesty's Astronomer at the Cape of Good Hope to the Secretary of the Admiralty, for the year 1898. London, 1899. Size 12½ × 10, pp. 18.

This report includes a statement as to the progress of the geodetic survey of South Africa. It includes the telegraphic determination of the longitude of Bulawayo and the measurement of a base-line of 11¾ miles by the Jäderin apparatus. Various important delimitation surveys and determinations of longitude have also been made.

Congo State—Geology. **Cornet.**

Études sur la Géologie du Congo Occidental entre la côte et le confluent du Ruki. Par J. Cornet. (Extrait du 'Bulletin de la Société Belge de Géologie, de Paléontologie et d'Hydrologie,' Tome xi., 1897.) Bruxelles, 1899. Size 9½ × 6½, pp. 311–378. *Sections.*

Egypt. **White.**

The Expansion of Egypt under Anglo-Egyptian Condominium. By Arthur Silva White. London: Methuen & Co., 1898. Size 9½ × 6, pp. xvi. and 484. *Maps. Price* 15*s. Presented by the Publishers.*

This is a politico-historical work largely based on geographical considerations, very clearly arranged, allowing of unusually ready reference, and illustrated by three admirable maps.

Egypt—Emerald Mines. **Karr.**

Eastern Desert of Egypt. Expedition to the Emerald Mines of Sikait and of Zebara. By H. W. Seton Karr. For Streeter & Co., Ltd. Size 10 × 8½, pp. 16. *Maps.*

Egypt—Public Works Department. **Garstin.**

Public Works Ministry. Report upon the Administration of the Public Works Department for 1898. By Sir W. E. Garstin, K.C.M.G. With Reports by the Officers in charge of the Several Branches of the Administration. Cairo, 1899. Size 11 × 7½, pp. 244. *Maps and Illustrations.*

French Congo. *B.S.G. Paris* **18** (1897): 129–178, 340–384 (1899): 496–518. **Julien.**

Du Haut-Oubangui vers le Chari par le bassin de la rivière Kota (Mai—Octobre 1894). Par le capitaine Julien. *With Map.*

French Sudan. *Questions Dipl. et Colon.* **6** (1899): 293–299, 423–430. **Filliâtre.**

Mission chez Samory (Juillet—Novembre 1897). Par M. le Filliâtre.

French West Africa. *Questions Dipl. et Colon.* **8** (1899): 33–41. **Arnaud-Régis.**

La Casamance, le pays Bayotte et le Balantacounda. Étude commerciale. Par P. Arnaud-Régis.

German East Africa—Kilimanjaro. **Meyer—Grossmann.**

M. Deutsch. Schutzgeb. **12** (1899): 143–167.

Barometrische Höhenmessungen am Kilimandjaro im Jahre 1898 von Dr. Hans Meyer. Berechnet von Dr. E. Grossmann.

The full discussion of the barometric and hypsometric observations is given, showing the method of determining the height with all the corrections applied.

German East Africa—Kilimanjaro. **Widenmann.**

Die Kilimandscharo-Bevölkerung. Anthropologisches und Ethnographisches aus dem Dschaggalande. Von Dr. A. Widenmann.—Dr. A. Petermanns Mitteilungen. Ergänzungsheft Nr. 129. Gotha: Justus Perthes, 1899. Size 11 × 7½, pp. x. and 104. *Illustrations.*

German South-West Africa. *Questions Dipl. et Colon.* **8** (1899): 76–86. **Hauser.**

Études sur les Colonies allemandes. III.—Afrique allemande du Sud-Ouest. Par M. H. Hauser. *With Map.*

German West Africa—Kamerun. **Stein.**

M. Deutsch. Schutzgeb. **12** (1899): 119–140, 141–142.

Ueber die geographischen Verhältnisse des Bezirkes Lolodorf (Südkamerungebiet), speziell die dort wohnenden Volksstämme. Von Freiherrn v. Stein. *With Map.*

Ueber das südliche Bakoko-Gebiet. Von Oberleutnant Freiherrn v. Stein.

Kamerun. *Deutsches Kolonialblatt* **10** (1899): 196–199. **Esch.**
Bericht des Geologen Dr. Esch über eine Reise in das Nkossiland.

Madagascar. **Gallieni.**
Renseignements Colon., Comité l'Afrique Française **7** (1899): 101–102.
Le rapport d'ensemble du général Gallieni sur Madagascar. *With Portrait.*

Madagascar. *C. Rd.* **129** (1899): 84–89. **Grandidier.**
Sur les travaux géographiques et cartographiques exécutés à Madagascar par ordre du général Gallieni, de 1897 à 1899. Par M. Alfred Grandidier.

Morocco. **Meakin.**
The Moorish Empire, a Historical Epitome. By Budgett Meakin. London: Sonnenschein & Co., 1899. Size 9 × 6, pp. xxiv. and 576. *Maps and Illustrations. Price* 15*s*. *Presented by the Publishers.*
An account of the history of Morocco from 500 years B.C to 1894, supported by copious references to the books of reference which have been utilized.

Portuguese East Africa—Delagoa Bay. **Jessett.**
The Key to South Africa: Delagoa Bay. By Montague George Jessett. London: T. Fisher Unwin, 1899. Size 8 × 5¼, pp. xviii. and 178. *Maps and Illustrations. Presented by the Author.*
An account based partly on compilation, partly on the observations made during a visit to Delagoa bay in 1897.

Portuguese East Africa—Gaza Land. **Costa.**
Cap. Gomes da Costa. Gaza, 1897-1898. Lisboa: M. Gomes. Size 10 × 6½, pp. 176. *Maps and Illustrations. Presented by the Author.*
The southern portion of Portuguese East Africa is treated under the heads of physical geography, general aspect, races, customs, history, fauna, flora, agriculture, climate and health, commerce, justice, routes, public works, and military and political organization.

Portuguese West Africa. *B.S.G. Lisboa* **16** (1897): 663–669. **Andrade.**
Estudos do planalto do districto de Benguella, do Bihé as Mochico (1897). Por Alfredo de Andrade.

South Africa. *Fortnightly Rev.* **66** (1899): 187–196. **Bryden.**
British and Dutch in South Africa. By H. A. Bryden.

Transvaal. *Imp. and Asiatic Quarterly Rev.* **8** (1899): 338–382. ——
The South African Republic. By Africanus.

Tunisia. *A travers le Monde, Tour du Monde* **5** (1899): 217–220. ——
Bizerte et Ferryville, la création d'une ville en Tunisie. *With Map and Illustrations.*

Tunisia. **Vivian.**
Tunisia and the Modern Barbary Pirates. By Herbert Vivian, M.A. London: C. Arthur Pearson, Limited, 1899. Size 9 × 6, pp. xvi. and 342. *Map and Illustrations. Price* 15*s*. *Presented by the Publishers.*
The epigrammatic style of this book may be judged from the first lines of the preface: "The authorities on Tunisia are not worth enumerating. Those in English belong to a former generation; those in French are prejudiced and stupid." The author claims that this book will be an indispensable companion to travellers in the country, that it exposes certain sacrifices of British prestige, and pays a tribute to the last survivors of a grand mediæval race. There is a historical chapter, and the greater part of the book deals rather with impressions of the people than with a description of the country.

West Africa. *Imp. and Asiatic Quarterly Rev.* **8** (1899): 327–337. **Bindloss.**
A Glance at Nigeria. By Harold Bindloss.

West Africa. *Blackwood's Mag.* **166** (1899): 275–294. ——
The Loss of Moshi. *With Map.*

NORTH AMERICA.

Alaskan Boundary. *Fortnightly Rev.* **66** (1899): 490–499. **Townsend.**
The Alaskan Boundary Question. By Horace Townsend.

Canada—British Columbia. *P.A. Nat. Sci. Philadelphia* (1899): 121–124. **Vaux.**

Some Observations on the Illecellewaet and Asulkan Glaciers of British Columbia. By George and William S. Vaux, Junr. *With Plates.*

Canada—Quebec. **Chalmers.**

Report on the Surface Geology and Auriferous Deposits of South-Eastern Quebec. By R. Chalmers. Geological Survey of Canada. Part J., Annual Report, vol. x. Ottawa, 1898. Size 10 × 6½, pp. 160. *Map and Illustrations. Presented by the Geological Survey of Canada.*

Contains an interesting history of gold-mining in the eastern townships, the part of Quebec lying south-west of Beauce county and between the St. Lawrence and the boundary of the United States.

Canada—Yukon District. *Rev. Française* **24** (1899): 564–575. **Servigny.**

Au Klondike, vers le pays de l'Or. Par M. J. Servigny. *With Map.*

Newfoundland. *Nineteenth Century* **46** (1899): 223–237. **Des Vœux.**

The Connection of England with Newfoundland. By Sir William Des Vœux, G.C., M.G.

Newfoundland—Labrador. *Climate* **1** (1899): 17–21. **Grenfell.**

Climate and Travel in Labrador. By W. T. Grenfell, M.R.C.S. *With Illustrations.*

The magazine containing this article is mainly devoted to the hygienic requirements of tropical climates, and is published by the Livingstone College.

United States—Arizona. *Globus* **76** (1899): 91–95, 172–174. **Ehrenreich.**

Ein Ausflug nach Tusayan (Arizona) im Sommer 1898. Von Dr. P. Ehrenreich. *With Illustrations.*

United States—Arizona. *Globus* **76** (1899): 53–54, 74–78, 138–142. **Ehrenreich.**

Ein Ausflug nach Tusayan (Arizona) im Sommer, 1898. Von Dr. P. Ehrenreich. *With Map and Illustrations.*

United States—Army. **Miles.**

Annual Report of the Major-General Commanding the Army to the Secretary of War, 1898, and Supplement. Washington, 1898 and 1899. Size 9 × 6, pp. 676; Supplement, 44. *Maps and Illustrations. Presented by General Greely.*

This volume is occupied with official reports and maps of the military operations of the United States army in Cuba, Porto Rico, and the Philippines.

United States—California. *Sierra Club B.* **2** (1899): 312–319. **Baker.**

The Lava Region of Northern California. By M. S. Baker. *With Map and Plates.*

United States—California. *Sierra Club B.* **2** (1899): 295–311. **Manson.**

Observations on the Denudation of Vegetation—a Suggested Remedy for California. By Marsden Manson, PH.D. *With Plates.*

United States—Colorado. **Purington.**

Preliminary Report on the Mining Industries of the Telluride Quadrangle, Colorado. By C. W. Purington.—Eighteenth Annual Report of the U.S. Geological Survey, 1896–97. Part iii. Pp. 745–848. *Plates.* Washington, 1898.

United States—Geological Survey. ———

Eighteenth Annual Report of the United States Geological Survey to the Secretary of the Interior, 1896–97. In Five Parts. Part i., Director's Report, including Triangulation and Spirit Levelling (1897, pp. 440); part iii., Economic Geology (1898, pp. 862); part iv., Hydrography (1897, pp. x. and 756). Washington. Size 12 × 8. *Maps, Diagrams, and Illustrations. Presented by the U.S. Geological Survey.*

These volumes contain a full account of the position of the triangulation of the United States carried out by the Geological Survey to the end of 1897, and of the levelling, with tables of sea-level heights, water-storage, and artesian-well boring in the Western States, and papers on economic geology, which will be entered specially.

United States—Illinois. **Wyndham.**

Coal Mining in the State of Illinois for the year 1898. Foreign Office, Miscellaneous, No. 507, 1899. Size 10 × 6½, pp. 10. *Price* 1*d.*

United States—Lake Michigan. **Cowles.**

Contributions from the Hull Botanical Laboratory. XIII. The Ecological Relations of the Vegetation on the Sand Dunes of Lake Michigan. By Henry Chandler

Cowles. Reprinted from the *Botanical Gazette*, vol. xxvii. Nos. 2, 3, 4, and 5, 1899. Chicago, 1899. Size 9½ × 7, pp. 95–391. *Map and Illustrations.*

"The province of ecology is to consider the mutual relations between plants and their environment," and this paper deals with the vegetation of the sand-dunes bordering Lake Michigan, in order to show the influence of the sand on the plants and that of the plants on the sand. See note, p. 668.

United States—Minnesota. *Science* **10** (1899): 107–110. **Hall.**

Distribution of the Keewatin in Minnesota. By Prof. C. W. Hall.

On the Keewatin rocks in Minnesota.

United States—New England. *B. Essex I.* **29** (1897): 71–119. **Woodworth.**

Some Glacial Wash-Plains of Southern New England. By J. B. Woodworth. *With Maps.*

United States—North Carolina. **Bassett.**

Slavery in the State of North Carolina. By John Spencer Bassett, PH.D.—Johns Hopkins University Studies in Historical and Political Science. Series xvii., Nos. 7, 8. Baltimore, 1899. Size 9½ × 6, pp. 112.

United States—South Dakota. *National G. Mag.* **10** (1899): 339–343. **Darton.**

Bad Lands of South Dakota. By N. H. Darton. *With Illustrations.*

United States—Washington. **Elliot.**

Catalogue of Mammals from the Olympic Mountains, Washington. With Descriptions of New Species. By D. G. Elliot.—Field Columbian Museum Publication, 32. Zoological Series, vol. i. No. 13. Chicago, 1899. Size 10 × 6½, pp. 241–276. *Plates.*

This catalogue contains a number of interesting views of scenery in the Olympic mountains.

CENTRAL AND SOUTH AMERICA.

Andes. *B.S.G. Lima* **8** (1898): 165–171. **Raimondi.**

Alturas sobre el nivel del mar, de las abras ó pasos de la Cordillera occidental. Por Antonio Raimondi.

Anguilla. **Rat.**

Anguilla. Report on Vital Statistics, 1898. Colonial Reports, Miscellaneous, No. 12, 1899. Size 10 × 6, pp. 20. *Price* 1½*d.*

Argentine Republic. ———

Annuaire Statistique de la Ville de Buénos-Ayres viii^me^ Année, 1898. Buenos-Ayres, 1899. Size 10½ × 7½, pp. xxvi. and 326.

Argentine Republic—Buenos Aires. ———

Anuario de la Dirección General de Estadística correspondiente al Año 1897. Tomo I. Buenos Aires, 1898. Size 11 × 7½, pp. xvi. and 468.

Barbados. **Williams.**

Barbados. Annual Report for 1898. Colonial Reports, Annual No. 262, 1899. Size 10 × 6, pp. 32. *Price* 2*d.*

Bolivia. *Deutsche Rundschau G.* **21** (1899): 346–354. **Nusser-Asport.**

Einige Wochen auf der bolivianischen Puna. Von Chr. Nusser-Asport.

Brazil—Parà. *L'Esplorazione Com.* **14** (1899): 170, 209, 237, 257. **Manzi.**

Quello che ho Veduto al Parà: Colonizzazione ed Emigrazione. Alberto Manzi.

Chile—Atacama. *B. Geolog. I. University Upsala* **4** (1898): 28–44. **Nordenskjöld.**

Ueber einige Erzlagerstätten der Atacamawüste. Von Otto Nordenskjöld. II.

Colombia. **Nichols.**

The Ores of Colombia from Mines in operation in 1892. By Henry Windsor Nichols, S.B. Field Columbian Museum, Publication 33. Geological Series, vol. i. No. 3. Chicago, 1899. Size 10 × 6½, pp. 125–176. *Map.*

Colombia. *Scottish G. Mag.* **15** (1899): 470–479. **White.**

Brief Notes on the Glacial Phenomena of Colombia (South America). By R. Blake White. *With Illustrations.*

Falkland Islands. **Craigie-Halkett.**

Falkland Islands. Annual Report for 1898. Colonial Reports, Annual No. 263, 1899. Size 10 × 6, pp. 22. *Price* 1½*d.*

Guadeloupe. *Questions Dipl. et Colon.* **7** (1899): 449–466. **Isaac.**

La Guadeloupe en 1899. Par A. Isaac.

The late M. Isaac represented Guadeloupe in the Upper Chamber of the French Parliament, and being a native of the island, and long charged with high official duties there, his views are of special value.

Nicaragua Canal. *National G. Mag.* **10** (1899): 297–316. **Nimmo and Johnson.**

The Proposed American Interoceanic Canal in its Commercial Aspects. By Joseph Nimmo, Jr., LL.D. The Interoceanic Canal. By Emory R. Johnson.

Nicaragua Canal. *Science* **10** (1899): 97–104. **Hayes.**

The Nicaragua Canal Route. By Dr. C. Willard Hayes.

Paraguay. *Globus* **76** (1899): 78–80. **Lehmann.**

Weitere Mitteilungen über die Guayakis in Paraguay. Von Dr. Rob. Lehmann-Nitsche. *With Illustration.*

Peru. *C. Rd. S.G. Paris* (1899): 283–285. **Bourgeois.**

Nouvelle mesure d'un arc de méridien. Par M. le commandant Bourgeois.

Porto Rico. *Globus* **76** (1899): 133–138. **Hübener.**

Reise-Eindrücke aus Puertorico. Von Dr. Th. Hübener.

South America. *B.S.G. Com. Bordeaux* **22** (1899): 294–302. **Hessel.**

Sur le commerce du "caucho" dans l'Amérique du sud. Par Fred. J. Hessel. *With Sketch-map.*

An account, translated from 'The Indiarubber World' of New York, of a commercial expedition up the Amazon into Peru in search of the quality of indiarubber known in the trade as *caucho*.

West Indies—Hurricane. *National G. Mag.* **10** (1899): 343–348. **Garriott.**

The West Indian Hurricane of August 7–14, 1899. By E. B. Garriott. *With Diagram.*

AUSTRALASIA AND PACIFIC ISLANDS.

Australia. *Quarterly Rev.* **190** (1899): 289–315. ——

The Federation of Australia.

A study of the position of the Australian colonies in respect to their administration, and the proposed constitution of the federated commonwealth.

Australia—Discovery. **Heeres.**

The part borne by the Dutch in the Discovery of Australia, 1606–1765. By J. E. Heeres, LL.D. Published by the Royal Dutch Geographical Society in commemoration of the XXVth Anniversary of its Foundation. London: Luzac & Co., 1899. Size 14½ × 10½, pp. 6, xviii. and 106. *Maps. Price* 21*s. Presented by the Publishers.*

This important work is printed in Dutch and English. It deals with Dutch voyages to Australasia between 1602 and 1756, and is illustrated with facsimile reproductions of early maps.

Australia—Ethnology. **Mathew.**

Eaglehawk and Crow, a Study of the Australian Aborigines, including an Inquiry into their origin and a Survey of Australian Languages. By John Mathew. London: D. Nutt, 1899. Size 9½ × 6, pp. xvi. and 288. *Map and Illustrations. Price* 18*s. Presented by the Publisher.*

This volume deals with the aborigines of Australia as a whole, and is illustrated by a linguistic map of the continent. The study of the native languages has led the author to believe that the original settlement took place in the north-east, and the linguistic argument is carried out with great completeness. A new classification of Australian languages is given, and there are comprehensive vocabularies allowing the development of many words to be traced.

Australia—Ethnology. *J. and P.R.S. New South Wales* **32** (1898): 66–87. **Mathews.**

Australian Divisional Systems. By R. H. Mathews.

British New Guinea. **Jullien.**

Miss. Catholiques **31** (1899): 293, 306, 317, 328, 346, 352, 370, 380.

Chez les Papous. Une première visite à la tribu des Uni-Uni. Lettre du R. P. André Jullien. *With Map and Illustrations.*

New South Wales. *J. and P.R.S. New South Wales* **32** (1898): 88-103. **Boultbee.**

Artesian Water in New South Wales. By J. W. Boultbee.

An account of the progress being made in the west of New South Wales in irrigating land by means of deep artesian wells, the boring of which is believed to be practicable over 60,000 square miles.

New South Wales—Jenolan Caves. ——

The Jenolan Caves and the Blue Mountains. By Argus. Parramatta, 1898. Size 10 × 7½, pp. 54. *Plans and Illustrations. Price* 1*s*. *Presented by the Agent-General for New South Wales.*

The New South Wales Government has provided the Jenolan caves with footways and illuminated them with electric light, so as to make their remarkable features accessible to visitors.

New Zealand. *P.I. Civil Engineers* **136** (1899): 265-267. **Rawson.**

Westport Harbour, New Zealand.—Wave Basin. By T. H. Rawson. *With Plan.*

New Zealand. **Grace.**

A Sketch of the New Zealand War. By Morgan S. Grace, C.M.G. London: H. Marshall & Son, 1899. Size 7½ × 5, pp. 172. *Map and Portraits. Price* 3*s*. 6*d*. *Presented by the Publishers.*

Personal recollections of the Maori war of 1860.

Pacific Islands. **Pfeil.**

Studien und Beobachtungen aus der Südsee. Von Joachim Graf Pfeil. Braunschweig. F. Vieweg und Sohn, 1899. Size 10½ × 7, pp. xiv. and 322. *Illustrations. Presented by the Author.*

This finely illustrated volume contains an account of the observations made by Count Pfeil in New Guinea and the neighbouring islands.

Queensland. **Rutlidge.**

Guide to Queensland. Compiled . . . by Charles Schaefer Rutlidge. London: Dean & Son [1899]. Size 9 × 5½, pp. 174. *Map and Illustrations. Presented by the Author.*

Samoa. *G.Z.* **5** (1899): 489-508. **Krämer.**

Die wirtschaftliche Lage auf Samoa und in der umgebenden Südsee. Von Dr. Augustin Krämer.

Tasmania. *T.R.G.S. Australasia* (*Victoria*) **16** (1898): 38-42. **Shillinglaw.**

Notes on an Original Chart of the South and East Coasts of Tasmania (supposed to have been constructed by Capt. Tobias Furneaux). By J. J. Shillinglaw.

Tasmania—Furneaux Islands. *J. Manchester G.S.* **14** (1898): 355-360. **Stephens.**

The Tasmanian Half-Castes of the Furneaux Islands. By Edward Stephens.

POLAR REGIONS.

Andrée's Expedition. *A travers le Monde, Tour du Monde* **5** (1899): 245-246. ——

Le Ballon d'Andrée. Son itinéraire hypothétique. *With Map.*

Antarctic. **Arctowski.**

The Antarctic Climate. By Henry Arctowski. From the *Geographical Journal* for October, 1899. Size 10 × 6½, pp. 8.

Antarctic. **Cook.**

Through the First Antarctic Night. A lecture by Dr. Frederick A. Cook. From the *Buenos Aires Christian Advocate and the Epworth Herald*, vol. vi. No. 5. Buenos Aires, May, 1899. Size 15 × 11, pp. [3].

Antarctic. *Mouvement G.* **16** (1899): 228-229, 240-242. **Gerlache.**

L'expédition antarctique Belge. Par M. De Gerlache.

Swedish Arctic Expedition. **Nathorst.**

The Swedish Arctic Expedition of 1898. By Prof. A. G. Nathorst. From the *Geographical Journal* for July and August, 1899. Size 10 × 6½, pp. 48. *Maps and Illustrations.*

MATHEMATICAL GEOGRAPHY.

Geodesy. **Ferrero.**

Association Géodésique Internationale. Rapport sur les Triangulations présenté à

la Douzième Conférence Générale à Stuttgart en 1898. Par le général A. Ferrero. Florence, 1899. Size 12 × 9, pp. xxxvi. and 454. *Map and Plates.*

The map shows the present state of the triangulated surveys of Europe.

Geodesy. **Hirsch.**

Comptes-rendus des séances de la Douzième Conférence Générale de l'Association Géodésique Internationale réunie à Stuttgart du 3 au 12 Octobre 1898, rédigés par le Secrétaire perpétuel A. Hirsch, publiés en même temps que les Rapports spéciaux sur les progrès de la Mesure de la Terre, et les Rapports des Délégués sur les travaux géodésiques accomplis dans leurs pays. Berlin: D. Reimer, 1899. Size 12 × 9, pp. 582. *Maps and Diagrams. Presented by the Centralbureau der Internationalen Erdmessung, Potsdam.*

The proceedings of the Twelfth International Geodetic Conference, at which Great Britain was represented for the first time (by Prof. George Darwin). It contains a report on the measurements of deviation from the vertical at several stations, a series of reports on the observations of latitude changes in all parts of the world, gravity observations with the pendulum in various places and a report on the progress of triangulation in different European countries and in the United States.

Geographical Distances. **Détrez.**

Recherches sur les Distances géographiques et en particulier sur celle de Calais á Douvres. Par G. Détrez. 2e Édition. Lille: G. Détrez, 1896. Size 10 × 6¼, pp. 32. *Presented by the Author.*

Discusses the various values assigned to the distance between Dover and Calais. This involves a discussion of the value of the units employed, especially the *league;* often it can be arrived at by comparison with other distances cited as equal, greater, or less. The author then gives the measurement of the distance on the French map on the scale 1: 80,000, and finally calculates from the latitude and longitude of the two positions the great circle and loxodromic distances respectively. The three last come out as 41·30, 41·516, 41·548 kilometres.

Horizon. *C.Rd.* **129** (1899): 272–274. **Forel.**

Les variations de l'horizon apparent. Note de M. F.-A. Forel.

PHYSICAL AND BIOLOGICAL GEOGRAPHY.

Atmospheric and Oceanic Currents. **Bjerknes.**

K. Svenska Vet.-A. Handlingar **31** (4) (1898): 136.

Ueber einen hydrodynamischen Fundamentalsatz und seine Anwendung besonders auf die Mechanik der Atmosphäre und des Weltmeeres. Von V. Bjerknes. *Plates.*

The author argues that the causes of the great movements of the atmosphere and the ocean are to be sought always in differences of density which are *not* caused by pressure. These causes are explained by formulæ and statements based on the recognition of isobaric and isosteric surfaces, enclosing between them isobaric and isosteric sheets and solenoids.

Atmospheric Tides. *C. Rd.* **129** (1899): 529–533. **Poincaré.**

Écarts barométriques sur le méridien du Soleil aux jours successifs de la révolution tropique de la Lune. Note de M. A. Poincaré.

Aurora. *K. Svenska Vet.-A. Handlingar* **31** (3) (1898): 1–46. **Ekholm and Arrhenius.**

Ueber die nahezu 26-tägige Periode der Polarlichter und Gewitter. Von Nils Ekholm und Svante Arrhenius. *With Diagram.*

On the periodicity of auroral displays and thunderstorms nearly approaching the period of the lunar month.

Aurora, etc. **Ekholm and Arrhenius.**

K. Svenska Vet.-A. Handlingar **31** (2) (1898): 1–78.

Ueber den Einfluss des Mondes auf Polarlichter und Gewitter. Von Nils Ekholm und Svante Arrhenius. *With Diagrams.*

The authors, having previously demonstrated that the position of the moon exercises an important influence on atmospheric electricity in general, now show that this influence is also apparent in the phenomena of the aurora and of thunderstorms.

Climatology. *Meteorolog. Z.* **16** (1899): 317–319. **Polis.**

Anwendung von meteorologischen Beobachtungen in der medicinischen Klimatologie. Von Dr. P. Polis.

Climatology—Rainfall. **Herbertson.**

The Monthly Rainfall over the Land Surface of the Globe. Inaugural-Dissertation zur Erlangung der Philosophischen Doktorwürde vorgelegt der hohen Philosophischen Facultät der Albert-Ludwigs-Universität zu Freiburg im Breisgau. Von Andrew John Herbertson. Size 10 × 6½, pp. 68. *Maps.*

Geographical Element in Geology. *G.Z.* **5** (1899): 405–406. **Diener.**

Ueber die Bedeutung des geographischen Moments in geologischen Lokalmonographien. Von Prof. D. C. Diener.

Points out the importance of writing local geological memoirs on a geographical basis rather than on the basis of geological formations.

Oceanography. *Ann. Hydrographie* **27** (1899): 458–468. **Krämer.**

Aräometer-, Meeresfarbe- und Plankton-Untersuchungen im Atlantischen und im Stillen Ozean. Von Dr. Augustin Krämer.

Oceanography. *G.Z.* **5** (1899): 509–512. **Krümmel.**

Die tiefste Depression des Meeresbodens. Von Otto Krümmel. *With Map.*

Oceanography. *Scottish G. Mag.* **15** (1899): 505–522. **Murray.**

Address to the Geographical Section of the British Association, 1899. By Sir John Murray, K.C.B., etc. *With Chart.*

Oceanography. *National G. Mag.* **10** (1899): 291–296. **Smith.**

Deep-Sea exploring expedition of the Steamer *Albatross.* By Hugh M. Smith. *With Illustrations.*

The Fish Commission's steamer *Albatross* being on the point of starting for a long scientific cruise in the Pacific, the author takes the opportunity of describing her equipment, and giving a preliminary account of her intended route.

Oceanography. *Petermanns M.* **45** (1899): 177–188. **Supan.**

Die Bodenformen des Weltmeeres. Von Alex. Supan. *With Map and Profiles.*

Sand-plain Formation. *J. Geology* **7** (1899): 452–462. **Fuller.**

Season and Time Elements in Sand-plain Formation. By Myron L. Fuller.

Sea Barriers. *J. Geology* **7** (1899): 445–451. **Newsom.**

The Effect of Sea Barriers upon Ultimate Drainage. By J. F. Newsom.

Terrestrial Magnetism. *B. Philosoph. S. Washington* **13** (1899): 269–336. **Littlehales.**

The Secular Change in the Direction of the Terrestrial Magnetic Field at the Earth's Surface. By G. W. Littlehales. *With Diagrams.*

ANTHROPOGEOGRAPHY AND HISTORICAL GEOGRAPHY.

Anthropogeography. *Rev. Scientifique* **12** (1899): 405–407. **Gros.**

La géographie médicale. Par M. H. Gros.

On the importance of acquiring knowledge regarding the relation of the progress of disease to geographical surroundings.

Colonisation. ———

Jewish Colonisation Association. Report of the Central Administration to the Council of Administration for the Year 1898. London, 1899. Size 8½ × 5½, pp. 48.

Particulars of the Jewish colonies established in the Argentine republic, United States, Canada, Palestine, and elsewhere.

Commercial Geography—Wheat. **Heiderich.**

Deutsche Rundschau G. **21** (1899): 320–323, 370–372.

Die Weizenproduction der Erde. Von Franz Heiderich.

On the production of wheat in all parts of the Earth.

Historical—Magellan's Voyage. **Pigafetta and Walls y Merino.**

B.S.G. Madrid **41** (1899): i.–liii.

Primer viaje alrededor del mundo por el Caballero Antonio Pigafetta; traducción del italiano y notas por D. Manuel Walls y Merino. *With Maps.*

A translation into Spanish of Pigafetta's record of the first circumnavigation of the world.

Historical—Sea Power. *J.R. United Service I.* **43** (1899): 947–967. **Marshall.**

The Importance of Sea Power in the growth of the Roman Empire, and the lessons taught to Great Britain. Lecture by Mr. William W. Marshall.

Historical Maps. *Petermanns M.* **45** (1899): 188–194. **Wieser.**

A. E. v. Nordenskiöld's Periplus. Von F. R. v. Wieser.

A review of Baron Nordenskiöld's great work.

Historical Notes. *B.S.G. Lisboa* **16** (1897): 671–697. **Cordeiro.**

Annotações historicas. De Luciano Cordeiro.

Notes on communications between the Senate of Nuremberg and the kings of Portugal on geographical matters from 1426 to 1520, including several relating to Martin Behaim.

Political Geography. *J.R. Statistical S.* **62** (1899): 489–533. **Flux.**

The Flag and Trade: a Summary Review of the Trade of the Chief Colonial Empires. By A. W. Flux.

BIOGRAPHY.

Almer. *Jahrb. Schweizer-Alpenclub* **34** (1899): 199–224. **Coolidge.**

Christian Almer (1826–1898). Von W. A. B. Coolidge. *With Portrait. Also separate copy, presented by the Author.*

The biography of a famous alpine guide.

Biography. **Plarr.**

Men and Women of the Time. A Dictionary of Contemporaries. Fifteenth Edition, revised and brought down to the present time. By Victor G. Plarr, M.A. London: G. Routledge & Sons, 1899. Size 9½ × 6, pp. x. and 1300. *Price* 15*s.*

Brinton. *Science* **10** (1899): 193–196. ——

Daniel G. Brinton. By W. J. M. *With Portrait.*

Brinton. *Globus* **76** (1899): 165–166. **Boas.**

Daniel Garrison Brinton. Von Franz Boas. *With Portrait.*

Carranza. *B.S.G. Lima* **8** (1898): 121–136. **Chacaltana.**

El Dr. D. Luis Carranza. Por el Dr. Cesáreo Chacaltana. *With Portrait.*

Grant. **Seton-Karr.**

Grant of Rothiemurchus. A Memoir of the Services of Sir John Peter Grant, G.C.M.G., K.C.B. By Walter Scott Seton-Karr, Esq. London: John Murray, 1899. Size 9 × 7½, pp. xii. and 240. *Portrait. Presented by the Secretary of State for India.*

Sir J. P. Grant served in India from 1828 to 1862, and in Jamaica from 1866 to 1874. The first part of this book is a biographical memoir, the second a selection from Grant's official reports and minutes on many matters of interest regarding India and Jamaica.

Humboldt. ——

Wissenschaftliche Beiträge zum Gedächtniss der hundertjährigen Wiederkehr des Antritts von Alexander von Humboldt's Reise nach Amerika am 5. Juni 1799. Aus Anlass des Siebenten Internationalen Geographen-Kongresses herausgegeben von der Gesellschaft für Erdkunde zu Berlin. Berlin: W. H. Kühl, 1899. Size 11 × 7½, pp. 54, 248, and 32. *Maps and Facsimiles. Presented by Dr. J. Scott Keltie.*

This elegant volume contains three memoirs, the first notes regarding some unpublished letters of Humboldt's before his departure for South America, together with the text of the letters and some facsimiles. The others deal with the progress of knowledge in the hundred years since Humboldt's activity began in the departments of phyto-geography, by Prof. Engler, and atmospheric isotherms, by Prof. Meinardus.

GENERAL.

Ballooning. *C. Rd.* **129** (1899): 527–529. **Hermite.**

Sur un voyage aérien de longue durée, de Paris à la Méditerranée, exécuté le 16–17 Septembre dernier. Note de M. Gustave Hermite.

Notes of a balloon trip of 407 miles from Paris to the Mediterranean, the distance being accomplished in 15 hours 8 minutes, *i.e.* an average rate of 27 miles per hour.

Bibliography. **Baschin.**

Bibliotheca Geographica, herausgegeben von der Gesellschaft für Erdkunde zu Berlin. Bearbeitet von Otto Baschin. Band v. Jahrgang 1896. Berlin: W. H. Kühl, 1899. Size 9 × 6, pp. xviii. and 450. *Presented by the Gesellschaft für Erdkunde, Berlin.*

This issue of the *Bibliotheca Geographica* contains numerous improvements, of which the most important is the addition of an index to authors' names. The volume contains 9400 titles, in the collection of which over 800 journals have been looked through, as well as the best bibliographical catalogues of all countries. It is extremely gratifying to find that this work, invaluable to the geographer, has been recognized as of public utility by the German Emperor, who has made a special grant towards its expenses. It has also been officially recognized by the International Geographical Congress as fully meeting all the requirements of an international geographical bibliography.

Bibliography—Catalogue. ——

Société de Géographie de Lille, Roubaix, Tourcoing et Valenciennes. Supplément au Bulletin de Juillet 1899. Catalogue de la Bibliothèque. Juin 1899: Lille, 1899. Size 10 × 6½, pp. 110.

British Empire. **Wachs.**

Die Etappenstrasse von England nach Indien um das Kap der Guten Hoffnung. Von Otto Wachs. Berlin: E. S. Mittler und Sohn, 1899. Size 9½ × 7, pp. 62. *Price* 1*s.* 6*d.*

This memoir, a reprint from the 'Marine-Rundschau' for 1899, deals with the strategic aspect of the routes to India through the Suez Canal and by the Cape of Good Hope with regard to their value to the British Empire, and the possibility of France or other Powers blocking or embarrassing traffic.

Canada. *Miss. Catholiques* **31 (1899):** **Geelen.**

Chez les Sauteux du lac Winnipegosis. Lettre du R. P. Ph. Geelen.

Church Missionary Society. ——

Proceedings of the Church Missionary Society for Africa and the East, One Hundredth Year, 1898–99. London: Church Missionary House, 1899. Size 8½ × 6, pp. lxxvi., 472, and 400. *Maps. Presented by the Church Missionary Society.*

Educational—Text-book. **Supan.**

Allgemeine Erdkunde als Anhang zur Deutschen Schulgeographie. Von Prof. Dr. A. Supan. Gotha: Justus Perthes, 1898. Size 9 × 6, pp. 56. *Price* 60*pf.*

A general introduction to the principles of geography.

Education—University. **Löffler.**

Die Geographie als Universitätsfach zunächst im Anschluss an einen Vortrag im Studentenverein. Von Dr. E. Löffler. Kopenhagen: Lehmann & Stage; Leipzig: Otto Harrassowitz. 1899. Size 8 × 5½, pp. 32. *Presented by the Author.*

On the positions of Geography as a subject for University study and instruction.

Exploration. **Hasse.**

Reports of Explorations printed in the Documents of the United States Government. [A contribution toward a Bibliography.] Compiled by Adelaide R. Hasse. Washington, 1899. Size 9½ × 6, pp. 90. *Presented by the Compiler.*

This bibliography deals with explorations in all parts of the world, but mainly in North America.

Geographical Congress. *Nature* **60 (1899):** 632–634. ——

The Seventh International Geographical Congress.

Geographical Congress. **Wagner.**

Der vii. Internationale Geographenkongress zu Berlin, 28 Septembre bis 4 Oktober 1899. Von Hermann Wagner.—Geographischer Anzeiger herausgegeben von Justus Perthes in Gotha. September, 1899, pp. 1–2. Size 11 × 9.

Geographical Orthography. *Rev. G.* **45 (1899):** 161–178. **Garnier—Ammann.**

Méthode de transcription, rationnelle générale des noms géographiques (T.R.G.) Par Christian Garnier. Par Prof. A. Ammann.

Geographical Orthography. *Petermanns M.* **45 (1899):** 194–196. **Sieger.**

Chr. Garniers Versuch einer allgemeinen Transskription geographischer Namen. Von Prof. Dr. R. Sieger.

Geographical Progress. *B.S.G. Paris* **18, 1897 (1899):** 385–472. **Maunoir.**

Rapport sur les travaux de la Société de Géographie et sur les progrès des sciences géographiques pendant l'année 1896. Par Ch. Maunoir.

Geography. **Mill.**

The International Geography. By Seventy Authors. With 488 Illustrations. Edited by Hugh Robert Mill, D.Sc. London: George Newnes, Limited, 1899. Size 9 × 6, pp. xx and 1088. *Maps. Price* 15*s. Two copies, one presented by the Publishers, one by the Editor.*

Each section is the work of a specialist. The book is divided into two parts, one dealing with the Principles of Geography in 121 pp., the other describing the continents and countries of the world, with special chapters on the arctic and antarctic regions. The authors include Sir Clements Markham, Sir John Murray, Sir Charles Wilson, Sir Harry Johnston, Sir Frederic Goldsmid, Sir Martin Conway, Sir William Macgregor, Sir George Robertson, Dr. Nansen, Mr. Selous, Mr. James Bryce, Mrs. Bishop, Count Pfeil, Profs. Kirchhoff, de Lapparent, Davis, Penck, Kan, Keane, Dr. J. Scott Keltie, Dr. Thoroddsen, Mr. Warington Smyth, Captain Vasconcellos. See review, p. 656.

German Colonies.

Kolonial-Handels-Adressbuch, 1899. Herausgegeben von dem Kolonial-Wirtschaftlichen Komitee. Beilage zum Deutschen Kolonialblatt 1899. Berlin. Size 10½ × 7½, pp. 90. *Maps.*

A directory of the commercial firms in the German colonies, together with many data of commercial interest, and a set of maps of the colonies showing the position of all trading centres and trade-routes.

Missionary Reports.

Free Church of Scotland. Sixty-ninth Report on Foreign Missions to the General Assembly of the Free Church of Scotland. May, 1899. Edinburgh, 1899. Size 9 × 5½, pp. 124, 84, 26, 16, 20, 14.

Names on Maps. *J. Manchester G.S.* **14** (1898): 297–303. **Crook.**

The Orthography, Location, and Selection of Names for the National Maps. By Henry T. Crook.

NEW MAPS.

By J. COLES, *Map Curator*, R.G.S.

EUROPE.

Berlin. **Königl. Preuss. Geolog. Landesanstalt.**

Geologische Uebersichtskarte der Umgegend von Berlin. Scale 1 : 100,000 or 1·6 stat. mile to an inch. Herausgegeben von der Konigl. Preuss. Geolog. Landesanstalt. Siebenter Internationaler Geographen-Kongress, Berlin, 1899.

Berlin. **Müller.**

Neuer Verkehrs-Plan von Gross-Berlin, bearbeitet von Gustav Müller. Kartograph der Königl. Preuss. Landesaufnahme. Scale 1 : 20,000 or 0·3 stat. mile to an inch. Berlin, 1899. Deutsches Kartographisches Institut. Bethcke and Reiss. viii. Internationaler Geographen-Kongress, Berlin, 1899.

Denmark. **Danish General Staff.**

Generalstabens topografiske Kaart over Danmark. Scale 1 : 40,000 or 1·6 stat. mile to an inch. Kalkograferet og graveret ved Generalstaben, Kjöbenhavn, 1898, 1899. Sheets: Vorsaa, Kollerup, Klitmöller, Hanstholm, Bolbjerg. *Presented by R. Danish Ministry of War.*

England and Wales. **Ordnance Survey.**

Publications issued since October 8, 1899.

1-inch:—

England and Wales (revision):—96, 233. Hills engraved in black or brown. 1*s. each.*

6-inch—County Maps:—

England and Wales (revision):—**Cheshire,** 3 S.W., S.E., 6 S.E., 7 N.W., N.E., 8 N.E., 12 N.E. S.W., S.E., 13 S.W., S.E., 14 S.W., 16 S.W., 17 N.W., N.E., 20 S.E., 22 N.W., N.E., S.W., 23 S.W., S.E., 24 N.E., S.E., 30 S.E., 31 N.E., S.E., 37 N.W., S.E., 39 N.E., S.E., 41 S.W., 44 S.W., 46 S.E., 47 S.E., 48 N.W., 54 N.W., S.E., 56 N.E. **Derbyshire,** 8 N.W., S.E., 9 S.E.,

10 S.W., 11 N.E., 12 N.W., 20 N.W., 21 N.E. **Herts**, 1 S.E., 2 S.W., 4 N.W., N.E., 6 N.E., S.W., 11 S.W., 19 N.W., 18 S.E., 19 S.W., 43 S.W. **Notts**, 17 S.E. **Staffordshire**, 1 N.E., 2 N.E. **Westmorland**, 27 N.E., 31 N.E., 34 N.E., 35 S.E., 36 N.E., S.W., S.E., 37 S.W., S.E., 38 N.E., 39 S.E., 40 N.W., S.W., 41 N.W., N.E., S.E., 42 N.W., 43 N.W., N.E., S.E., 44 N.W., N.E., S.E., 45 N.E., 46 N.E., S.W., S.E., 47 N.W., N.E., 48 N.W., N.E., S.W., 50 N.E., 51 N.W. 1*s. each.*

25-inch—Parish Maps:—

ENGLAND AND WALES (revision):—**Berkshire**, II. 10; XIII. 1, 3, 4, 5, 6, 8, 9, 10, 14, 15, 16; XIV. 9, 10, 12; XV. 1, 7; XIX. 2, 3, 4, 6, 7, 8, 10, 11, 12, 14, 16; XX. 1 to 16; XXI. 4; XXVI. 2, 3, 4, 5, 6, 7, 8, 9, 11, 12, 15, 16; XXVII. 13, 14; XXXIV. 2, 3, 4, 6; XXXV. 1; XXXVII. 5, 13; XXXVII. 9, 10, 11, 13, 14, 15; XLV. 2, 7, 8, 12; XLVI. 14; XLVII. 13, 14. **Buckinghamshire**, XV. 5; XXII. 13; XXIII. 7; XXVII. 1, 5, 9, 10, 11; XXVIII. 1, 2, 4, 6, 13, 14; XXX. 5, 9; **Cumberland**, LXI. 6, 8, 10, 15; LXII. 5, 8, 11, 12, 14; LXIII. 5; LXIV. 1, 3, 9; LXVII. 3, 6, 12; LXVIII. 1, 2. **Denbighshire**, VIII. 15; IX. 3; XIII. 10, 15; XIV. 14, 16; XV. 10, 13, 14; XXII. 5; XXVIII. 1, 14; XXXIV. 2, 6, 7, 10, 14; XXXV. 11, 15; XXXVI. 13; XXXVIII. 12, 16; XXXIX. 4, 6, 7, 9, 12, 15, 16; XL. 3, 5, 6, 9, 10; XLI. 3, 4, 6, 8, 11, 12, 14, 16; XLII. 3, 6, 9, 10, 11, 14, 15. **Flintshire**, I. 16; VI. 6, 10, 14; VIII. 3; IX. 4; XI. 14; XIII. 8, 10, 14; XV. 2, 6; XIX. 1; XX. 13; XXI. 16; XXIV. 4. **Glamorganshire**, XVII. 13; XXVII. 9; XXXVI. 13; XLI., 3, 7, 8, 15; XLV. 2, 3, 5, 6, 8. **Notts**, VI. 13, 14, 15, 16; VII. 8, 12, 13, 14, 15, 16; IX. 1, 5, 6, 7, 8, 10, 11, 13. **Oxfordshire**, XX. 12; XXVII. 15; XXIX. 5, 9. **Staffordshire**, VI. 15; VII. 13; XI. 13; XII. 6; XIII. 14, 15; XVII. 11. **Sussex**, LVIII. 10, 14; LXXI. 2. **Westmorland**, III. 14, 15, 16; IV. 6, 7, 9, 10, 11, 12, 16; V. 5, 9; VII. 2, 6, 9, 13; XII. 4. 3*s. each.*
(*E. Stanford, Agent.*)

England and Wales. **Bartholomew.**

Bartholomew's Reduced Ordnance Survey of England and Wales. Scale 1: 126,720 or 2 stat. miles to an inch. Sheet 28, Bath and Bristol. J. Bartholomew & Co., Edinburgh, 1899. *Price 2s. mounted on cloth. Presented by the Publishers.*

Finland. **Société de Géographie de Finlande.**

Atlas de Finlande. Société de Géographie de Finlande. Helsingfors, 1899. Société Anonyme F. Tilgmann. 46 maps and tables. *Presented by the Geographical Society of Finland.*

This is a physical and statistical atlas of Finland, which has been subsidized by the Government, and edited by a committee under the auspices of the Geographical Society of Finland.

The atlas commences with a general map of Finland, on which political boundaries and means of communication are shown, the importance of towns and villages being indicated by the symbols employed to mark their positions. These are followed by physical, political, historical, and statistical maps and diagrams, all of which are clearly drawn; while at the end of the atlas there are reproductions of parts of the maps of Olaus Magnus (1539) and Andreas Bureus (1626). The accompanying text is issued with the publications of the Geographical Society of Finland.

Great care has evidently been taken in the compilation of this atlas, which will be most useful for reference, not only to students, but also to the increasing number of persons who now visit Finland during the summer months of every year.

France. **Thoulet.**

Carte Lithologique des Côtes de France. Par M. Thoulet. Paris: Augustin Challamel, 1899. *Presented by the Author.*

France. **Thoulet.**

Atlas de Lithologie Sous-Marine des Côtes de France. Par J. Thoulet, 1899. *Presented by the Author.*

Thuringia. **Königl. Preuss. Geolog. Landesanstalt.**

Geologische Spezialkarte von Preussen und den Thuringischen Staaten. Scale 1: 25,000 or 0·4 stat. mile to an inch. Herausgegeben von der Königl. Preuss. Geolog. Landesanstalt. Gradabteilung 45, No. 33, Blatt Rüdersdorf. Siebenter Internationaler Geographen-Kongress, Berlin, 1899.

ASIA.

Indian Government Surveys. **Surveyor-General of India.**

Indian Atlas, 4 miles to an inch. Sheets: 29, District Gujrat and parts of districts Jhelum, Rawal-Pindi, and Sialkot (Punjab), with parts of Kishtwar, Nowshera, Badrawar, and Jummu (Kashmir Territory), additions to 1897; 30, parts of districts Lahore, Gujranwala, Amritsar, Gurdaspur, Hoshiarpur, Jullundhur, Ludihana, Sialkot, Ferozepore, Gujrat, Shahpur, Kangra, Montgomery Jhang, and of Native States Faridkot and Kapurthala (Punjab), additions to 1896; 58, parts of districts Lingsugúr, Ráichur, Shorapur, and Nagad Karnul (Nizam's Dominions), of Karnul, Anantapur, and Bellary (Madras Presidency), of Bijapur and Dhárwár (Bombay Presidency), additions to 1893; 104, parts of districts Mirzapur (N.W. Provinces), Shahabad, Gaya, Hazaribagh, Lohardaga, Palamau, and Sarguja State (Bengal), additions to 1898; 115, parts of districts Balasore, Cuttack, and Midnapore, and of Mayurbhanja, Keonjhar, Dhenkanal, Hindol, Bonai, Lahara, Tigiria, and Baramba, Tributary States of Orissa (Bengal), with additions to 1895; 119, districts Dinajpur and Bogra, and parts of districts Rangpur, Maldah, and Mymensing of Bengal, with part of Garo Hills, with additions to 1897.—Quarter sheets: 2 S.E., parts of districts Karáchi and Hyderabad (Sind, Bombay Presidency), additions to 1895; 10 N.E., parts of Native State of Khyrpur and district Thar and Parkar (Sindh), additions to 1895; 11 S.W., parts of Kutch and the Great Ran, and of district Karáchi (Bombay Presidency), 1898; 14 S.E., parts of districts Pesháwar, Kohát, Rawalpindi, and Hazára (Punjab), 1899; 39 N.E., parts of districts Ahmednagar (Bombay Presidency), Bid, and Naldurg (Nizam's Dominions), additions to 1895; 48 N.E., parts of districts Dehra Dún, Saháranpur, Garhwál, and Native State of Tehri Garhwál (N.W. Provinces), and districts Umballa, Karnál, and Native States of Sirmur, Patiála, and Kálsia (Punjab), 1899; 49 N.W., parts of districts Rohlak, Hissar, Karnál, and Delhi, and of Native States Jind, Dujána, and Lohárn (Punjab), additions to 1898; 66 N.W., parts of districts Garhwál and Dehra Dun, and Native State of Tehri Garhwal (N.W. Provinces), additions to 1896; 66 N.E., parts of districts Almora and Garhwál (N.W. Provinces), and Hundes (Tibet), additions to 1896; 69 S.W., parts of districts Jhansi, Hamirpur (N.W. Provinces), Gwalior, Tehri, and Datia (Native States), C. I. Agency, additions and corrections to 1896; 79 S.W., parts of districts Coimbatore, Salem, Madura, Trichinopoly, Tanjore, and South Arcot (Madras Presidency), 1899; 52 S.E., parts of district Sangor and Bhopal, Gwalior, Pathári, Kurwai, Tonk, Muhammodgarh, and Nawab Básoda (Native States), additions to 1896; 53 N.E., parts of Gwalior (Sindhia) and Bhopal Native States, additions to 1896; 49 N.E., parts of districts Moradabad, Meerut, Muzaffarnagar, Bulandshahr and Bijnor (N.W. Provinces), Delhi and Karnal (Punjab), additions to 1898; 48 S.E., parts of districts Dehra Dun, British Garhwal, Saharanpur, Muzaffarnagar, and Bijnor (N.W. Provinces), and Karnal and Umballa (Punjab), additions to 1897; 69 S.E., parts of districts Hamirpur, Fatchpur, and Banda (N.W. Provinces), and Native State of Bundelkhand (C. I. Agency), additions to 1893; 87 S.W., parts of districts Lucknow, Bara Banki, Fyzabad, Unao, Rae Bareli, Sultanpur, and Gonda (N.W. Provinces and Oudh), additions to 1897; 126 N.W., parts of districts Dacca, Mymensingh, Tippera, Native State of Hill Tippera (Bengal), and district Sylhet (Assam), additions to 1898; 126 N.E., parts of districts Sylhet, Cachar, and North Lushai Hills (Assam), and Chittagong and the Native State of the Hill Tippera (Bengal), additions to 1898; 129 S.E., parts of districts Lakhimpur and Sibsagar, and of Naga Tribes (Assam), additions to 1891.—India. Scale: 32 miles to an inch. 3rd edition, 1898. 6 sheets.—Railway Map of India, 48 miles to an inch. 1899. 4 sheets.—Upper Burma Survey, 1 inch to a mile. Nos. 315, Myelat and Southern Shan States, Seasons 1894–96; 352, parts of Northern and Southern Shan States, Season 1896–97; 353, parts of Northern and Southern Shan States, Season 1896–97; 362, The Myelat and Southern Shan States, Season 1896–97 (Preliminary Edition).—Lower Burma Survey, 1 inch to a mile. No. 374, district Thaton (2nd edition), Seasons 1891–94 and 1895–96.—Sind Survey, 1 inch to a mile. Nos. 16, district Karáchi, Season 1895–96; 17, district Karáchi, Season 1895–96; 18, district Karáchi, Seasons 1894–96; 87 (preliminary issue), districts Thar and Párkar, Season 1896–97.—North-eastern Frontier, 1 inch to 4 miles. Nos. 15 N.E. (3rd edition), parts of Naga Hills, Nagar Tribes, and Manipur (Assam), and of district Upper Chindwin (Upper Burma), Seasons 1885–86 and 1893–94; 23 N.W. (8th edition), parts of districts Myitkyina, Upper Chindwin, and Katha (Upper Burma), Seasons 1885–93 and 1896–97.—South-eastern Frontier, 1 inch to 8 miles. Nos. 1 (5th edition), parts of North and South Lushai Hills and Native State of Manipur (Assam); of Chin Hills and the districts of Upper and Lower Chindwin, Katha,

Shwebo, Pakôkku, Sagaing, and Mandalay (Upper Burma); of Northern Arakan (Lower Burma); and of the districts of Chittagong and Native State of Hill Tippera (Bengal), Seasons 1853–66, 1871–72, and 1889–94; 2 s.w. (2nd edition), 1 inch to 4 miles; parts of districts Chittagong (Bengal), Northern Arakan, Akyab, and Kyaukpyu (Lower Burma), and Pakôkku (Upper Burma), Seasons 1853–61 and 1887–97; 2 s.e. (5th edition), parts of districts Pakôkku, Minbu, Myingyan, Meiktila, Yamithîn, Magwè, and Chin Hills (Upper Burma), Seasons 1885–87 and 1889–91 and in 1897.—Central India and Rajputana Survey, 1 inch to a mile. No. 379, parts of district Hoshangabad (Central Provinces) and Native State of Bhopal (C. I. Agency), Seasons 1863–65–67–68–73–74.—North-Western Provinces and Oudh, 1 inch to a mile. Dehra Dun and Siwáliks (2nd edition), Seasons 1873–76. 4 sheets.—Madras Presidency. 32 miles to an inch, with additions to 1897.—Upper Burma (2nd edition), 65 miles to an inch, 1898.—The Provinces of Bengal, Bihar, Orissa, and Chota Nagpur, 16 miles to an inch, additions and corrections to railways and boundaries, 1898. 2 sheets.—Burma and adjacent countries, 32 miles to an inch (2nd edition), additions and corrections to 1898. 2 sheets.—District Jalpáiguri and the Native State of Cooch Behar, 4 miles to an inch, additions to 1898.—District of Rawálpindi, 1 inch to a mile, Seasons 1853–55, 4 sheets.—District Raipur, Central Provinces, 20 miles to an inch, 1899.—District Mandla, Central Provinces, 8 miles to an inch, 1899.—District Seoni, Central Provinces, 8 miles to an inch, 1899.—District Shahpur, Punjab, 8 miles to an inch, 1899.—District Betúl, Central Provinces, 8 miles to an inch, 1899.—District Gurgaon, Punjab, 8 miles to an inch, 1899.—District Hoshiárpur, Punjab, 8 miles to an inch, 1899.—District Nimar, Central Provinces, 8 miles to an inch, 1899.—Districts Noákháli and Bengal, 8 miles to an inch, 1899.—District Monghyr, Lower Provinces (Bihar), 4 miles to an inch, additions and corrections to 1898.—District Jhelum, Punjab, 4 miles to an inch, 1899.—District Rawalpindi, Punjab, 4 miles to an inch, 1899.—Levels in the Punjab: No. 88, parts of districts Montgomery and Ferozepore, Bahâwalpur and Bickaneer States, 2 miles to an inch, 1898.—Charts of Triangulation: Central Provinces, 2 miles to an inch. Sheets Nos. 8, 9, 10, 11, 13, 14, 15, 17, 19, 20, 23, 24, 25, 26, 27, 28, 34, 35, 36, 37, 38, 39, 63, 64. 82, 83, 84. Seasons 1887–96, 1898.—Charts of Triangulation and Traverse: Sind, 2 miles to an inch. Sheets Nos. 15, 19, 20, 32, 33, 34, 38, 47, 48, 49, 50, 57, 66, 67, 68, 69, 105. Seasons 1895–98, 1899.—Chart of Triangulation: Shan States, Upper Burma, 4 miles to an inch, Seasons 1895–97, 1899.—Chart of Triangulation, 2 miles to an inch: Himalaya. Sheet No. 311 (Punjab), 2nd edition, Seasons 1886–91, 1899.—Index to the Great Trigonometrical Survey of India, 96 miles to an inch, 1893.—Index to the Indian Atlas, 1899.—*Presented by H.M. Secretary of State for India, through the India Office.*

AFRICA.

Boer Republics. **'Daily Mail.'**

The 'Daily Mail' Map of the Boer Republics, etc., to illustrate the Present Crisis in the Transvaal. Scale 1: 1,900,800 or 30 stat. miles to an inch. George Philip & Son, London and Liverpool, 1899. *Price* 1*s*. *Presented by the Publishers.*

Congo. **Droogmans.**

Carte du Bas-Congo. Scale 1: 500,000 or 7·8 stat. miles to an inch. H. Droogmans, 1899. Brussels: A. de Schaepmeester.

Natal Frontier. **Philip.**

Philips' Large Scale Military Map of the Seat of War on the Natal Frontier. Scale 1: 316,800 or 5 stat. miles to an inch. George Philip & Son, London and Liverpool, 1899. *Price* 1*s*. *Presented by the Publishers.*

This, like the *Daily Mail* map mentioned above, is mainly an outline map, but the chief physical features are roughly indicated.

South Africa. **Stanford.**

Stanford's New Map of the Orange Free State, the Southern Part of the South African Republic, the Northern Frontier of Cape Colony, Natal, Basutoland, and Delagoa Bay in Portuguese East Africa. Scale 1: 1,000,000 or 15·8 stat. miles to an inch. E. Stanford. London, 1899. *Presented by the Publisher.*

There is no hill shading on this map, and nothing to indicate the physical features of the country, except that the heights of several places, peaks, and passes, are given in figures. The map in other respects will be found useful for reference in connection with the movements of troops at the present time; an edition, with the physical features inserted, would be still more valuable.

AMERICA.

Canada. **Surveyor-General of Canada.**

Sectional Maps. Scale 1: 190,080 or 3 stat. miles to an inch. Sheets: 91, Sicamous; 93, Yale; 94, Lytton; 95, Kamloops. Topographical Surveys Branch. Department of the Interior, Ottawa, 1899. *Presented by the Surveyor-General of Canada.*

AUSTRALIA.

Coolgardie. **Blatchford and Allhusen.**

Geological Map of Coolgardie. Scale 220 yards to an inch. Geological lines by Torrington Blatchford and E. L. Allhusen, 1898. Geological Survey of Western Australia. 4 sheets. *Presented by the Director of the Geological Survey of Western Australia.*

This is a geologically coloured map of Coolgardie, which will be chiefly interesting to mining engineers, and persons concerned in the gold-mines of the district.

GENERAL.

World. **Meyer.**

Meyer's Hand-atlas. Zweite, neubearbeitete und vermehrte Auflage mit 112 Kartenblättern, 9 Textbeilagen und Register aller auf den Karten verzeichneten Namen. Parts 27 and 28 (in one) and 29 and 30 (in one). Leipzig und Wien. Verlag des Bibliographischen Instituts, 1899. *Price 60pf. each issue.*

CHARTS.

Russian Charts. **Chief Hydrographic Department, St. Petersburg.**

Charts and Plans published by the Chief Hydrographic Department. Ministry of Marine, St. Petersburg.

The Baltic.

No.
529. Plan of the Port of Pernau. Scale 700 feet to an inch. 1899.
536. Kronstadt—Plan of Docks. 1899.
517. Part of River Neva and Dock, St. Petersburg. Scale 70 feet to an inch. 1898.

The White Sea and Arctic Ocean.

541. Plan of Yugor Strait. Scale 1·15 mile to an inch. 1899.
538. Plan of Entrance to Unskoi Bay. Scale 1750 feet to an inch. 1899.

The Black Sea.

531. Plan of Sinope. Scale 2485 feet to an inch. 1899.
539. Plan of Kustenji Roadstead. Scale 1015 feet to an inch. 1899.

The North Pacific Ocean.

532. Plan of Port Chestakof, Korea. Scale 1302 feet to an inch. 1899.
543. Plan of Port Arthur. Scale 1505 feet to an inch. 1899.
1813. Chart of Strelok Bay and Askold Strait. With Putiatin and Askold Islands, Peter the Great Bay. Scale 4550 feet to an inch. 1899.

Presented by the Chief Hydrographic Department, St. Petersburg.

Southern Ocean. **Meteorological Office.**

Meteorological Charts of the Southern Ocean between the Cape of Good Hope and New Zealand. Meteorological Office, London, 1899. *Price* 12*s.* *Presented by the Meteorological Office.*

The charts included in this atlas have been compiled from the four-hourly observations of about 2000 logs, kept for the Meteorological Office between the years 1855 and 1895, as well as from about 450 logs of Her Majesty's ships. They are bounded in latitude by the parallels of 30° and 60° S., and in longitude by the meridians of 10° and 180° E. The direction and force of the wind is shown for areas of 3° of latitude by 10° of longitude, as well as the barometrical pressure by isobars, and the temperature of the air and sea-surface by isotherms. The regions of excessive range of sea-surface temperature are indicated by shading.

The amount of fog is shown by percentages of the total number of weather observations, and also graphically by curves. Currents are shown in separate monthly charts.

The atlas contains a large amount of information that will be useful to mariners, and persons interested in the study of meteorology.

United States Charts. **U.S. Hydrographic Office.**

Pilot Charts of the North Atlantic Ocean for September and October, 1899, and North Pacific Ocean for October, 1899. Published at the Hydrographic Office, Washington, D.C. *Presented by the U.S. Hydrographic Office.*

PHOTOGRAPHS.

Pacific Islands. **Lucas.**

Eighty-two Photographs of British and German New Guinea, New Britain, Solomon Islands, Santa Cruz Group, and New Hebrides. Taken by W. A. Lucas, of Balmain, N.S.W. *Presented by C. M. Woodford, Esq.*

This set of photographs comprises 82 photographs of scenery and the natives of the Western Pacific, as will be seen by the following list:—

British and German New Guinea.—(1) Village of Ela-vara, Port Moresby; (2) Village of Hanua-bada, Port Moresby; (3) Village of Tanua-bada, Port Moresby; (4) Native girl, Port Moresby; (5) Native village, Yule island, Gulf of Papua; (6) Group of natives, Yule island; (7) Yule island natives; (8) Bushi-mi-mi, Mambaie chief; (9) Sariba, near Samarai; (10) Scene at Sariba; (11) Native group, Sariba; (12) Native houses, Milne bay; (13) Native canoes, Dobu, D'Entrecastreaux Group; (14) Native houses, Freidrich Wilhelmshafen; (15 and 16) Natives in gala dress; (17) Trading canoe.

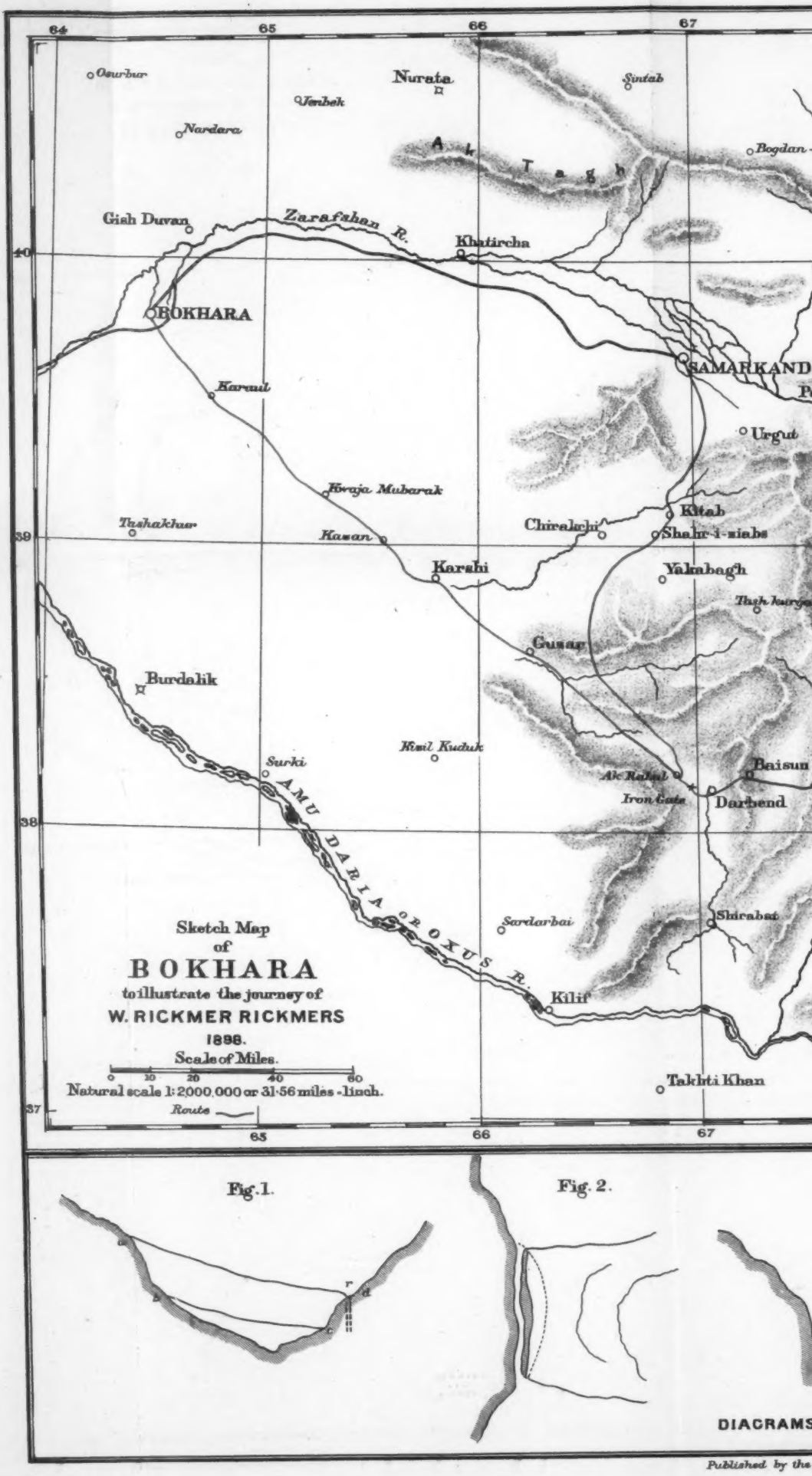
New Britain.—(18) Matupi, Blanche bay; (19) Rock in Blanche bay thrown up by an earthquake about thirty years ago; (20) Native group at fishing village, Blanche bay; (21) Fishing village, Herbertshöhe; (22) Fishtraps, anchors, and cables, Herbertshöhe; (23) Playing cat's-cradle; (24) Typical native; (25) Mioko, Duke of York group; (26) Pudding-making, Mioko; (27) Typical canoe, Mioko.

Solomon Islands.—(28) Head house, Simbo; (29) Native of Western Solomons; (30) Panna, a young Simbo chief; (31) Hunchback, Simbo; (32) Group of natives, Ronongo; (33) War canoe, house of Ingowar, chief of Rubiana (New Georgia); (34) Native village, Rubiana; (35) Rubiana boys in typical dress; (36) Two Sisieta men (Rubiana); (37) "Tambo" house and canoes, Sisieta; (38) Rubiana warrior with wicker shield, or "lavi"; (39) Rubiana head, showing pearl inlaid earring; (40) Chief's tomb, Savo; (41) Savo house; (42) Village of Baranago (Ngela), New Florida; (43) Giant canoe house, Baranago, 110 feet by 50 feet; (44) Killing the pigs; (45) Singeing and cutting up the pigs; (46) A party of the guests; (47) Tambikoro, dividing the food; (48) Party of guests subdividing the food; (49, 50) Malayta boy; (51) Group of Malayta boys; (52) Village of Aola, Guadalcanar; (53) Typical house, Aola; (54) Gnassi, an Aola native; (55) Buying copra at Marau, Guadalcanar; (56) Weighing out copra to export vessel, Marau; (57) a saltwater creek, Danae bay, Marau; (58) Waisari, principal chief of East Guadalcanar, and two minor chiefs; (59) Mangara, chief of Marau; (60) Typical group at Komachu islands, Marau; (61) Borassi, chief of Komachu islands, and family; (62) Guadalcanar house; (63) a Marau family; (64) Marau boys; (65) Marau maidens; (66) Mowi, chief of Adappo, with his children and grandchildren; (67) Native of Matuia, San Christoval.

Santa Cruz Group.—(68) Reef island women; (69) Typical house, Santa Cruz; (70, 71, 72) Types of Santa Cruz natives; (73) "Tambo" house, village of Lacmbay, Utupua; (74, 75) Beach scenes, Basilisk harbour, Utupua; (76) Tropical foliage, Santa Cruz; (77, 78, 79) Reef island canoes; (80) A Reef island's fleet on the beach at Carlisle bay, Santa Cruz.

New Hebrides.—(81) Native drums, Mèli, Sandwich island, or Efate; (82) Typical house, Vila.

N.B.—It would greatly add to the value of the collection of Photographs which has been established in the Map Room, if all the Fellows of the Society who have taken photographs during their travels, would forward copies of them to the Map Curator, by whom they will be acknowledged. Should the donor have purchased the photographs, it will be useful for reference if the name of the photographer and his address are given.



Sketch Map
of
BOKHARA
to illustrate the journey of
W. RICKMER RICKMERS
1898.

Scale of Miles.
0 10 20 40 60
Natural scale 1:2000,000 or 31·56 miles = 1 inch.

Fig. 1.

Fig. 2.

DIAGRAMS

Published by the

Fig. 3.

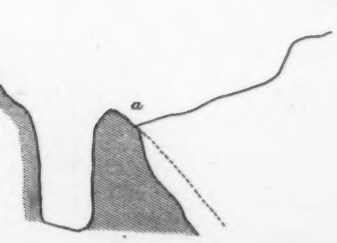
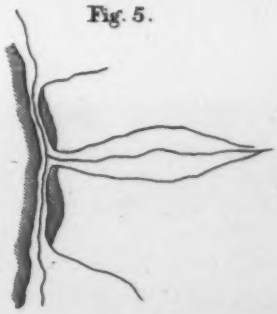
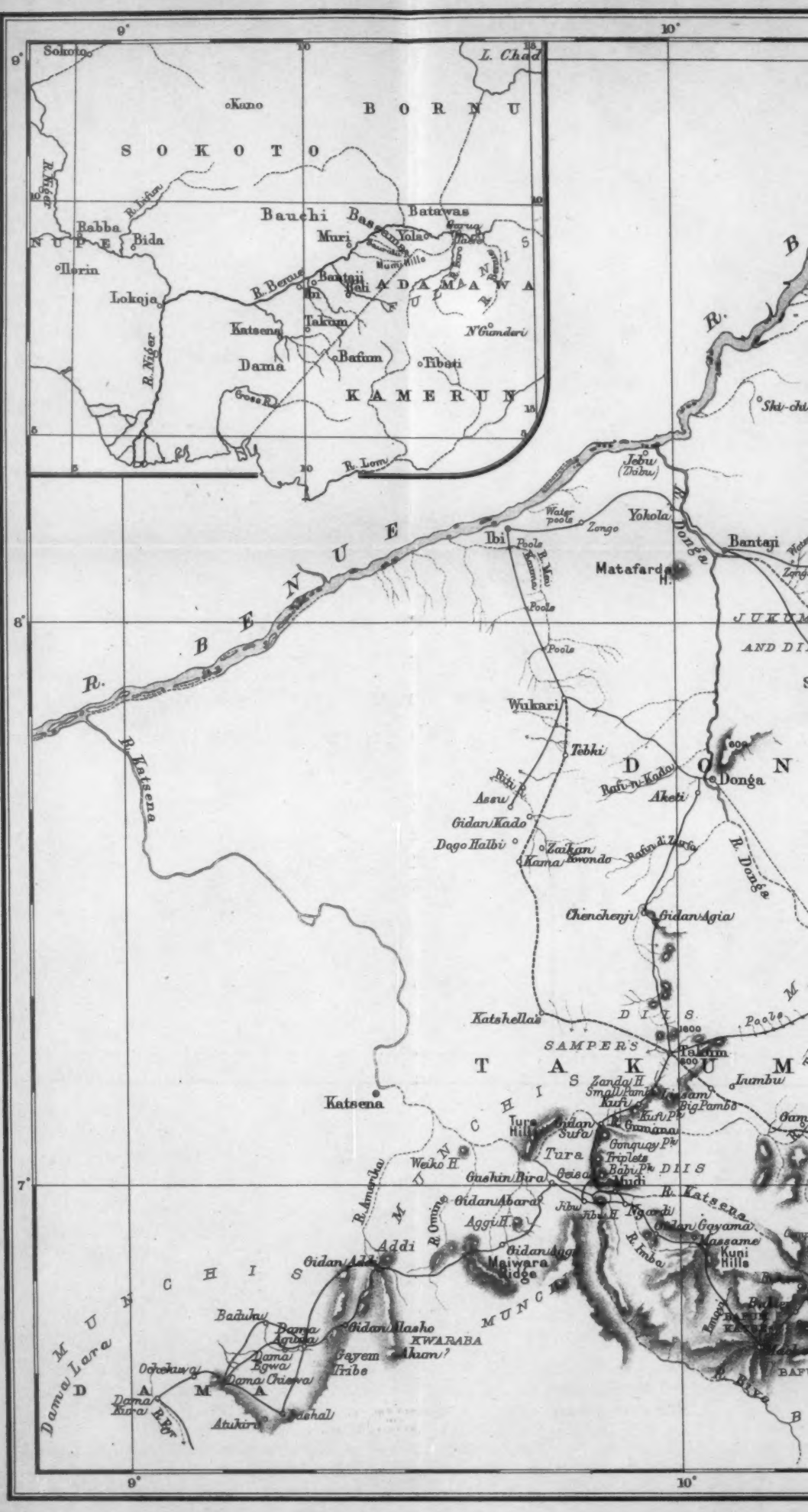


Fig. 4.

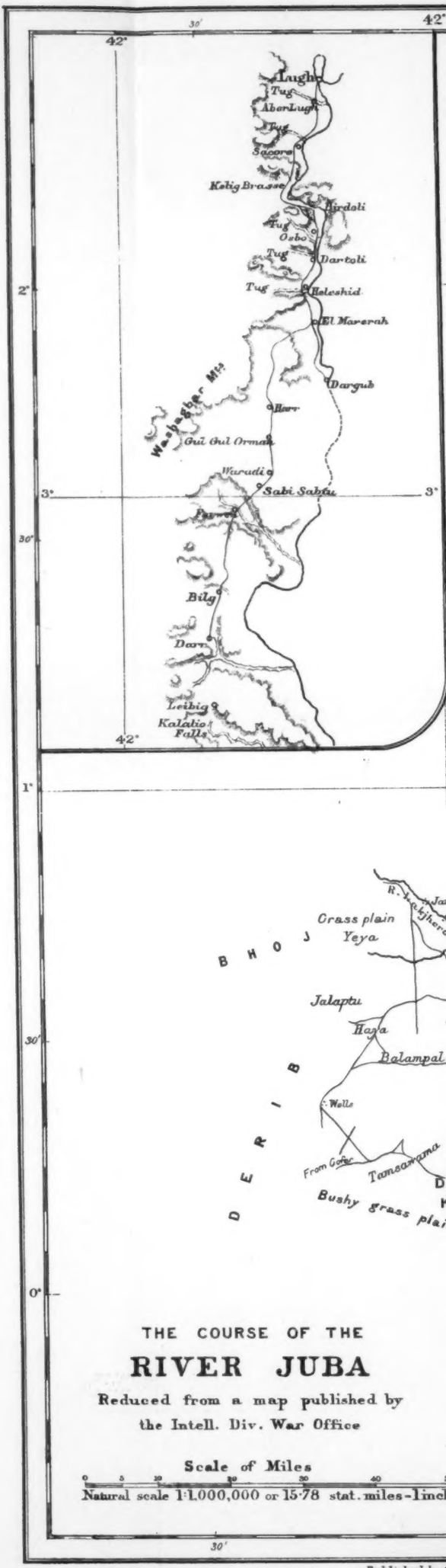
Fig. 5.



AMS OF BARRIERS IN THE DANDUSHKA VALLEY.


9°
10°
8°
7°
Sokoto
L. Chad
Kano
BORNU
SOKOTO
Rabba
Bida
NUPE
Ilorin
Lokoja
R. Niger
R. Benue
Bauchi
Batawas
Muri
Yola
ADAMAWA
Bantaji
Takum
Katsena
N'Gumderi
Dama
Bafum
Tibati
KAMERUN
Cross R.
R. Lom
Jebu (Zabu)
Water pools
Zongo
Yokola
Ibi
Pools
Matafarda H.
Bantaji
R. Benue
Wukari
Tebki
Donga
Aketi
Asaw
Gidan Kado
Dago Halbi
Zaikan Kama
Chenchenji
Gidan Agia
Katshellas
SAMPERS
TAKUM
Takum
Katsena
Zanda H.
Small Pambo
Big Pambo
Kuni Hills
Tura Hills
Gidan Sufa
Tura
Weiko H.
Gushin Biro
Gidan Abara
Aggi H.
Addi
Gidan Addi
Maiwara Ridge
R. Amerbo
R. Ombe
R. Katsena
Gidan Gayama
Massame
Kuni Hills
R. Imba
MUNCHIS
Baduku
Dama Agubu
Gidan Alasho
KWARABA
Akum?
Gayem Tribe
Dama Egwa
Dama Chiawa
Ochekwu
DAMA
Dama Kura
R. Bor
Atukiri
Dahal
Damu Lara
R. Donga
R. Donga
Ratin ni Kado
Ratin di Zaria
Kwondo
Kama
Poole
Water pools
Zongo
Kama R.
Ibi R.
Asaw
Donga
Bantaji
Matafarda H.
Yokola
Jebu (Zabu)
Takum
Tura Hills
Gidan Sufa
Tura
Triplets
Babu Pk
Gongway Pk
Kuni Pk
Big Pambo
Small Pambo
Zanda H.
Iumbu
Massame
Kuni Hills
Gidan Gayama
Gushin Biro
Weiko H.
Aggi H.
Gidan Abara
Gidan Addi
Addi
Maiwara Ridge
Gidan Agia
Chenchenji
Dago Halbi
Gidan Kado
Aketi
Ratin ni Kado
Ratin di Zaria
Kwondo
Kama
Tebki
Wukari
Poole
Pools
Poole
Poole
Poole

W. & A. K. Johnston, Edinburgh & London.



THE COURSE OF THE

RIVER JUBA

Reduced from a map published by the Intell. Div. War Office

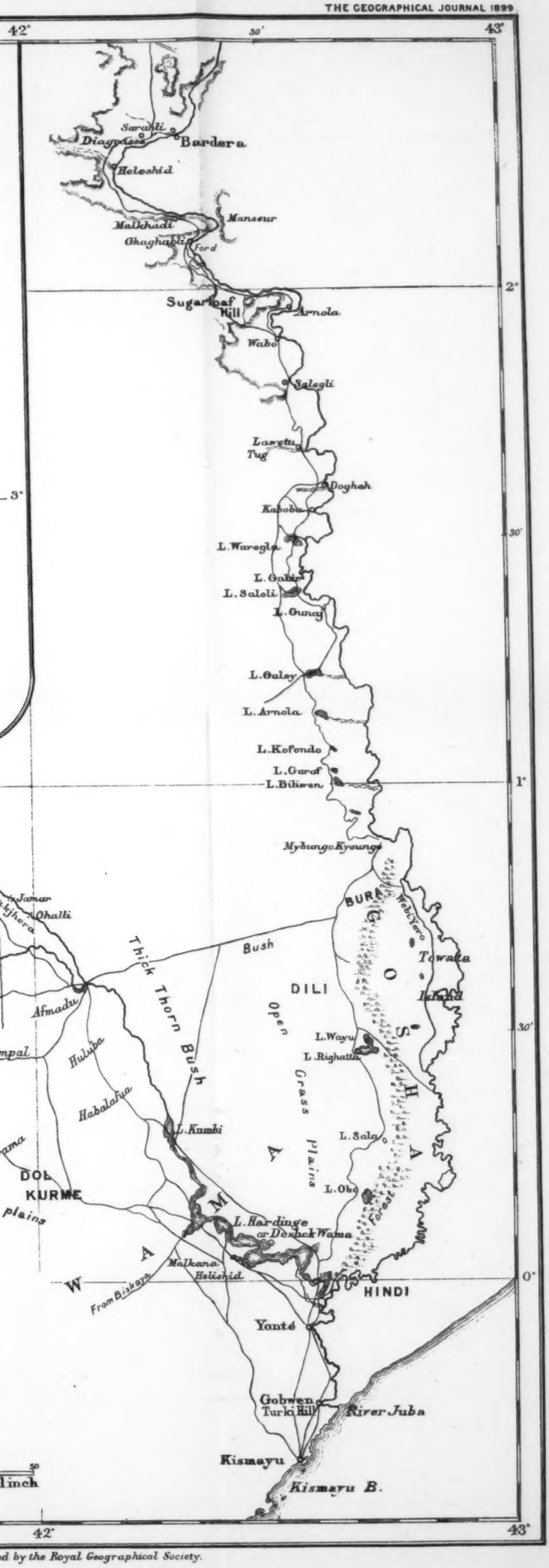
Scale of Miles

0 5 10 20 30 40

Natural scale 1:1,000,000 or 15·78 stat. miles-1inch

30'

Published by



d by the Royal Geographical Society.

INDEX.

* Denotes Articles and Papers. † New Publications.

A.

Aachen, Temperaturbeobachtungen zu, von Dr. Polis, 676 †
Abbate Pasha, Khartoum-Omdourman et la chute du Mahdisme, 459 †
Aberdare range, East Africa, 283
Aborigines of Formosa, Ino Kakyo on, 443
Absaroka Range, Early Tertiary Volcanoes of the, by A. Hague, 339 †
Abyssinia—
  Capital of, Position of, 564
  Russian explorations south of, 664
  Voyages en Abyssinie, par V. Buchs, 117 †
Aconcagua, Sir M. Conway's ascent of, 26
Adamawa—
  German progress in, 565
  Völkerstämme an der Südgrenze Adamawas, von Hauptmann Hutter, 337 †
Adamello und des St. Gotthard, Gebieten des, von Dr. Salomon, 221 †
Adams, H. B., Jared Sparks and Alexis de Tocqueville, 340 †
Address to the R.G.S., by Sir C. R. Markham, 1*; Opening Address to R.G.S., session 1899–1900..593
Adelaide Branch of the Royal Geographical Society of Australasia, Congratulations by, on the Antarctic Expedition, 203
Adis Ababa, Position of, 564
Adji Chai, Lake Urmi region, 508
Adler, C., The International Catalogue of Scientific Literature, 466 †
Admiralty charts, 127, 349–351, 591
Admiralty Surveys during 1898..83; Report on, by Sir W. Wharton, 343 †
Adour river, change of course of the, 406
Adriatic—
  Temperatura e del colore delle acque fatte nell' Adriatico, del A. Ricco e G. Saija, 123 †
Advent bay, Spitsbergen, 63
Africa—
  Africa, No. 9, Report by Colonel Macdonald on his Expedition from Uganda, 680 †
Africa—*continued.*
  Afrikanische Transcontinentalbahn, von G. Hayek, 226 †; Afrikanische Pfeil, Der, von Dr. K. Weule, 680 †
  Afrikas Angliederung an die europäische Culturwelt, von Dr. Rumpe, 680 †
  Afrique lusitanienne, par G. Vaes, 337 †
  After Big Game in Central Africa, by M. Foa, 459 †
  Ausbreitung des Sandflohs in, von P. Hesse, 680 †
  Bechuanaland Railway, Correspondence with Mr. C. Rhodes relating to the, 458 †
  Britain in Africa, by M. Seton, 336 †
  British Central, A Game-preserve in, 211; Trade, etc. (Foreign Office Rep.), 680 †
  British East: From Njemps to Marich, Save, and Mumia's, by Major Austin, 307; Photographs of, by Sir G. L. Molesworth, 352; Road-making and Surveying in, by Captain Smith, 269 *
  British South: Rhodesia, 1889-99 (Simpkin & Co.), 582 †; Papers relating to British South Africa Co., 338 †; Report of Her Majesty's Astronomer at the Cape of Good Hope, 681 †
  Bukoba, Der Bezirk, von Oberleutnant Richter, 460 †
  Central: Vingt-Deuxième traversée de l'Afrique Centrale, par A. J. Wauters, 226 †; Photographs taken in, by D. Crawford, 352
  Climate of Tropical Africa, Report of Committee on, 226 †, 547
  Convention Franco-Anglaise, 337 †
  Deux ans et demi au continent mystérieux, par M. Payeur-Didelot, 228 †
  East: La seconda spedizione Bòttego nell' Africa Orientale, di Vannutelli e Citerni, 117 †
  French West: A travers la Guinée et la Fouta-Diallon, La Mission Maclaud, 582 †; La Region Française du Tchad, par A. Monteil, 583 †; La

Africa—*continued.*
Casamance, par P. Arnaud-Régis, 681 †
German East: Notizie sull' Africa Orientale Tedesca, del G. Pestalozza, 118 †; Die Gletscher des Kilimandjaro, von Dr. Meyer, 118 †; Geographischen Ortsbestimmungen des Hauptmanns Ramsay, etc., 460 †; Geographical work in, 321; Dr. Dantz' geological explorations in, 446
German South-West: Mit Schwert und Pflug in Deutsch Südwestafrica, von K. Schwabe, 337 †; Note on the Pillar erected by Diaz near Angra Pequena, by W. L. Sclater, 337 †; Astronomische Ortsbestimmungen in Südwest-Afrika, von Hauptmann von Estorff, 227 †; Besiedelung Deutsch-Südwestafrikas, von Dr. E. v. Reichenbach, 227 †; Études sur les Colonies allemandes, par H. Hauser, 681 †
Haut-Oubangui, Mission de Béhagle, 459 †
Invasion européenne en Afrique, par Ed. Foa, 226 †
Livingstone's tree, Mr. Codrington's expedition to, 317, 444
Maps: Foa's journeys in Africa, 126; 'Daily Mail' Map of the Boer Republics, 694; Stanford's New Map of the Orange Free State, etc., 694
Marchand, Retour de, par G. Demanche, 336 †
Middlebrooks Photographien aus dem Leben der Zulukaffern, 118 †
Modern Bundooism and Kindred Institutions in Pagan Africa, by Rev. F. Snelson, 458 †
Populations naines de l'Afrique, par Lieut. Dubreucq, 117 †
Pygmées, Les, Négrilles d'Afrique, par M. le Roy, 227 †
Rubber plants, Herr Schlechter's study of, 445
South: Bibliography, etc., relating to, by H. S. Hollway, 338 †; Books and Maps on, 563; On the South African Frontier, by W. H. Brown, 582 †; Dr. Passarge's Journeys in, 310; Further Correspondence relative to the Affairs of Swaziland, 228 †; Invasion des Zoulous dans le Sud-Est Africain, par A. Grandjean, 228 †; Geodetic Survey of, 667; British and Dutch in, by H. A. Bryden, 682 †
South African Republic (*see also* Transvaal), Papers relating to the Complaints of British Subjects, 338 †
Trade and Shipping of, 117 †
Trans-afrikanische Eisenbahn, 226 †
Under the African Sun, by W. J. Ansorge, 117 †
Une étude inédite de Stanley, 680 †
Voulet-Chanoine, Mission, 459 †
Africa—*continued.*
West Coast, cable fractures off, 401; Portuguese Discoveries on, 665
Agostini, G. de, Il lago del Matese, 111 †; on Bathymetrical Observations in the Italian Lakes, 441
Air—
Exploration of Free Air by Means of Kites, etc., by A. L. Rotch, 345 †
Use of Kites in the Exploration of the Upper Air, by C. F. Marvin, 345 †
Alaska—
Alaska and the Klondike, by A. Heilprin, 583 †
Alaska-Grenzfrage, zwischen England und der Vereinigten Staaten, 583 †
American expeditions to, 322
Boundary Question, The Alaskan, by H. Townsend, 682 †
Glaciers of South-Eastern Alaska and Notes on, by O. J. Klotz, 523 *
Goldfields of, Reconnaissance of the, by G. F. Becker, 339 †
Shishaldin as a Field for Exploration, by J. Stanley-Brown, 583 †
Yukon Gold District, Geology of the, by J. E. Spurr and H. Goodrich, 339 †
Albania and the Albanians in 1898, by Rev. H. Callan, 578 †
Albatross exploring expedition in the Pacific Ocean, 215
Albert Edward Nyanza, Mr. Sharpe's explorations at, 662
Alberto, G., Descobrimento das Filippinas pelo navegador Portuguez Fernão de Magalhães, 466 †
Album Géographique, par MM. Dubois et Guy, 236 †
Aleutian Islands, Volcanoes of the, Mr. Stanley-Brown on, 567
Algeria—
Aurès, Notes sur l', par M. Besnier, 336 †
Excursion à Bou-Saada et M'Sila, par de Galland, 680 †
Foureau-Lamy Mission, La marche de la, 336, 680 †
France dans le sud Algérien, par G. Mercier, 680 †
Pénétration du Sahara par l'Algérie, par L. Kryszanowski, 336 †
Trade of (Foreign Office Rep.), 680 †
Western Erg of, 336 †
Algué, P. J., Baguios ó Ciclones Filipinos, 335 †
Allah-bund in the north-west of the Rann of Kuchh, A Note on the, by R. D. Oldham, 458 †
Almer, Christian, by W. A. B. Coolidge, 689 †
Alpine District—
La regione alpina, by Colonel Giannitrapani, 111 †
Alps—
Eastern, Baedeker's Handbook for Travellers, 674 †

Alps—*continued.*
Flora of the, by Prof. A. W. Bennett, 674 †
Glaciers of the, 316
Grundlinien der Struktur der Ostalpen, von Dr. C. Diener, 674 †
Hints . . . for Travellers in the, by the late John Ball, 109 †
Hours of Exercise in the, by J. Tyndall, 109 †
Morfometrici di alcuni laghi prealpini, pel Dr. G. Halbfass, 329 †
Préalpes Romandes, par H. Schardt, 109 †
Studi orografici nelle alpi orientali, del Prof. O. Marinelli, 109 †
Altai Mountains, On the Zoology and Botany of the, by H. J. Elwes, 216 †; note on, 204
Altitudes—
Sulla determinazione delle altitudini presso gli antichi, del Prof. Bertolini, 346 †
Altmann, Captain, map of King Charles Land, 70
Altmark—
Arendsee in der, von Dr. Halbfass, 577 †
Hopfenbau in der, von Dr. A. Mertens, 577 †
Altyn Tagh, Central Asia, 442
Amaru-mayu or Madre de Dios, 447
Amazon—
American War-ship on the, 567
Hautes régions des Amazones, par A. Viellerobe, 342 †
Italian Expedition to the Amazon valley, 213
Materiaes para a flora amazonica, pelo Dr. Huber, 462 †
Pays des Amazones, l'El-Dorado, les Terres à Caoutchouc, par Baron de Santa-Anna Nery, 585 †
Amboina, Der Wawani auf, von A. Wichmann, 225 †
Amdrup, Lieut., expedition to East Greenland, 449
America(n)—
American History and Geography, 228 †
Bay of Fundy Trough in American Geological History, by Prof. Bailey, 229 †
Central, Dr. Sapper on the Physical Geography of, 95
Commercial Directory of the American Republics, 229 †
Ephemeris and Nautical Almanac, 464 †
Fishes of North and Middle America, by Jordan and Evermann, 119 †
Geographical Society, Medal of, awarded to Sir John Murray, 105
Impressions of, by T. C. Porter, 461 †
Inter-oceanic Canal, Dr. Nimmo on the, 569; Prof. Johnson on the, 569
North: Select Bibliography on Travel in, by C. W. Plympton, 339 †
America—*continued.*
Some more discoverers of their predecessors' discoveries, by M. A. Shipley, 338 †
South: On two unclassified recent Vocabularies from, by D. G. Brinton, 121 †; The Vassalage of, by J. Frick, 121 †; Early explorations of, 241; Dr. Steffen's expedition in, 96; Letter from F. P. Moreno on Dr. Steffen's Exploration in, 219; Geographical progress in, 6; Sur le commerce du "caucho" dans l'Amerique du sud, par F. J. Hessel, 685 †
West Coast, Admiralty survey of, 84
Amerind—A Designation for the Aboriginal Tribes of the American Hemisphere, 346 †
Amorgos, L'île d', par H. Hauttecœur, 453 †
Amoy, Trade of (Foreign Office Rep.), 456 †
Anadyr, La province d', par A. Silnitzky, 116 †
Andamans—
Languages of the, by M. Portman, 114 †
Andean Cordillera, 244
Anderson, J. F., Sugar Industry of Mauritius, 118 †
Anderson, T., Vesuvius, a Note on the Eruption of September, 1898..223 †
Andes—
Alturas sobre el nivel del mar, por A. Raimondi, 684 †
Climbs in the, by Sir M. Conway, 584 †
Exploration in the Bolivian Andes, by Sir M. Conway, 14 *
Volcanic rock of the, 31
Andreasen, Captain, map of King Charles Land, 72
Andrée—
Ballon d'Andrée, Le, 686 †
Andrée search expedition under Dr. Nathorst, 97
Andrée's Route, letter from Mr. A. M. Brice on, 575
Angles—
Epreuves des instruments destinés aux expériences sur la decimalisation des angles, par M. Caspari, 343 †
Anglo-Jewish Association, Annual Report of, 347 †
Angola, New Railway for, 567; Southern Interior of, Dr. Baum's expedition, 665
Angoumois, Une paroisse autrefois en, par E. Vincent, 576 †
Anguilla, Report on Vital Statistics, 684 †
Anniversary Meeting of the R.G.S., 102; Dinner, 107
Annotaçoes historicas, de L. Cordeiro, 689†
Ansorge, W. J., Under the African Sun, 117 †
Antarctic, The, 53
Antarctic—
Antarctic and Southern Exploration, by Hon. P. G. King, 343 †

Antarctic—*continued.*
Antarctic Climate, The, by H. Arctowski, 686 †
Antarctic exploration, M. Arctowski on, 547, 548
Bathymetrical Conditions of the Antarctic Regions, by H. Arctowski, 77 *
Botanischen Ziele der Südpolar Forschung, von Dr. Neger, 343 †; note on, 448
Climate, The, by H. Arctowski, 413 *
Deutsche Südpolar expedition, von Dr. Oberhummer, 231 †
Deutschen Tiefsee-Expedition, Hauptergebnisse der, von Dr. A. Supan, 231 †
Erklärung geographischer Namen aus der Südpolarwelt, von E. Oppermann, 231 †
Expédition Antarctique Belge, 231 †; 343 †; par M. de Gerlache, 686 †
Expedition, The National, Deputation to the Government, 190; Congratulations of the Adelaide Geographical Society, 203
Expeditions, The, by Sir C. Markham, 473 *; Progress of, 7, 439, 440; Gerlache's, 7; Borchgrevink's 8, 438
Ocean, temperatures of the, 39, 40, 45
Physical and Chemical work of an Antarctic Expedition, by J. Y. Buchanan, 552 *
Plans for Antarctic Exploration, 342 †; Plans for reaching the South Pole, by G. Grosvenor, 586 †
Spedizioni polari antartiche, by G. Pini, 586 †
Terra Australis Incognita, by Prof. Morris, 586 †
Through the First Antarctic Night, by Dr. F. Cook, 686 †
Treibeis in südlichen Breiten, von L. Dinklage, 586 †
Anthropogeographie, von Dr. F. Ratzel, 124 †
Anthropological Expedition to Torres Straits and Sarawak, 302; Anthropological Investigations . . . Children of the New York Juvenile Asylum, by Dr. A. Hrdlicka, 461 †
Antitaurus und in Cilicien, Chantres Reisen im, 226 †
Apenninského ku Balkánokému, Vztah polooostrova, by S. F. Nerad, 224 †
Apulia—
Sulla Plastica e la Geologia della Regione Pugliese, di C. Bertacchi, 331 †
Arabia—
Arabica, par le Comte de Landberg, 333 †
Expedition nach Süd-Arabien, von Dr. C. Graf Landberg, 224 †
Südarabische Expedition, von Dr. C. Graf. Landberg, 678 †
Südarabische Expedition . . . des Grafen Carlo Landberg, von Dr. Müller, 333 †
Aramaya, Señor, remarks on "Explorations in the Bolivian Andes," 31
Aräometer . . . im Atlantischen und im Stillen Ozean, von Dr. Krämer, 688 †
Arbo, C., Fortsatte Bidrag til Nordmændenes Anthropologi, 112 †
Arc of Meridian of Quito, Re-measurement of the, 323
Arctic—
A Thousand Days in the, by F. G. Jackson, 122 †
Currents, Drift-casks for the determination of, 326
Expeditions: Duke of Abruzzi's, 98; Nathorst's, 97, 448, 534; Peary's, 325, 448, 570; Wellman's, 326; Russian, proposed, 327; Sverdrup's, 448, 571; Stein's, 326, 571; Andrée's probable route, 575
In Nacht und Eis, von B. Nordahl und Lieut. Johansen, 231 †
La via al Polo Nord, Breve Critica della geografia fisica, 343 †
Swedish Arctic Expedition of 1898, by Prof. Nathorst, 51 *, 155 *, 686 †
Temperatures of the Arctic Ocean, 38, 40, 44
Arctowski, H., The Antarctic Climate, 413 *, 686 †; The Bathymetrical Conditions of the Antarctic Regions, 77 *; on Antarctic exploration, 547, 548
Ardishai, Lake Urmi region, 507
Argentine—
Argentina, Il Distretto consolare di La Plata, del C. Nagar, 341 †
Missions Franciscaines du désert argentin, par Mme. Beck-Bernard, 120 †
Resultados Hipsométricos de algunos Viajes del Dr. Bodenbender, por O. Doering, 584 †
Territorial area of, 245
Argentine Chilean Boundary in the Puna of Atacama, 322
Argentino, Lake, 253, 260
Aridity in the Western United States, Increase of, Mr. Leiberg on, 212
Arizona—
Ausflug nach Tusayan (Arizona), von Dr. Ehrenreich, 683 †
Armenia—
Forschungsreise durch Armenien, von W. Belck und C. Lehmann, 224 †
Reisebriefe von der Armenischen Expedition, von Drs. Belck und Lehmann, 113 †
Armitage, A., award to, 103
Armstrong, Sir A., obituary of, 217
Arzu island, Lake Urmi, 514
Asia—
All-British Railway to China, by C. A. Moreing, 678 †
Barren der Danduschka, von W. R. Rickmers, 582 †
Britischen und französischen Besitzungen in Vorder- und Hinterindien, von H. Wagner, 225 †

Asia—*continued.*
Central: Reise durch Central-Asien und China, von Drs. Futterer und Holderer, 114†; M. Dutreuil de Rhins in, letter from M. Grenard on, 328; Dutreuil de Rhins' Mission in, Final Results, 442; Meteorologische Beobachtungen in Luktschun, Zentralasien, von Dr. Friederichsen, 581†; Dr. Sven Hedin's work in, 90
Durch Asiens Wüsten, von Sven Hedin, 225†
East: Reise des Grafen Bela Széchenyi in Ostasien, 114†; Wirthschaftsverhältnisse Ostasiens, von A. Wiesenburg, 114†
Geographischen Forschungen und Reisen in 1898, von Dr. Jüttner, 678†
Heart of Asia, The, by Skrine and Ross, 336†; note on, 560
Highway of the Nations, etc., by Colonel Mark Bell, 678†
Maps: Carte de l'Asie Centrale, et Carte Ethnographique et Politique de l'Asie Centrale, par F. Grenard, 238
Mission Scientifique dans la Haute Asie, par M. Dutreuil de Rhins, 225†
Reiseskizzen aus Transkaspien, von G. Boehm, 336†
Vom Mittelmeer zum Persischen Golf, von Dr. Oppenheim, 117†
Asia Minor—
Asie Mineure au point de vue de l'emigration allemande, par Dr. Oehlmann, 579†
Aus Kleinasien, von Dr. Escherich, 226†
Chemin de fer projeté entre la Méditerranée et le Golfe Persique, par M. Morel, 113†
Maps: Archäologische Karte von Kleinasien, von Drs. Ruge and Friedrich, 348
Assam—
Mikir Hills in Assam, Geology of, by F. H. Smith, 458†
Trade between Assam and adjoining Foreign Countries, Report on, by L. J. Kershaw, 458†
Astronomie und Geophysik, Jahrbuch der, von Dr. Klein, 234†
Atacama—
Erzlagerstätten der Atacamawüste, von G. Nordenskjöld, 684†
Atlantic—
Eastern Margin of the North Atlantic Basin, Mr. Hudleston on, 327
Pilot charts, 128, 239, 469
South, cold bottom water of the, 553
Temperatures of the, 38, 40, 44
Atlases—
Atlas Melin, par A. Paris, 127
Atlas Universel de Géographie, par MM. Vivien de Saint Martin et Schrader, 239, 349
Bartholomew's Physical Atlas, vol. iii.
Atlases—*continued.*
Atlas of Meteorology, 590; Review on, by Dr. H. R. Mill, 649
Historical Atlas of Modern Europe, by R. L. Poole, 126, 468
Meyer's Hand Atlas, 239, 349, 469, 591, 695
Atmosphere—
Circulation of the, by Prof. W. M. Davis, 586†
Explorations of the Upper Atmosphere, by H. de Graffigny, 345†
Atmospheric and Oceanic Currents—
Ueber einen hydrodynamischen . . . Mechanik der Atmosphäre und des Weltmeeres, von V. Bjerknes, 687†
Atmospheric gases dissolved in sea-water, Determination of, 554
Atmospheric Tides—
Écarts barométriques sur le méridien du Soleil, etc., par M. Poincaré, 687†
Auk Horn, Spitsbergen, 64
Aurora—
Ueber . . . Periode der Polarlichter und Gewitter, von N. Ekholm und S. Arrhenius, 687†
Austin, Major, From Njemps to Marich, Save, and Mumia's, 307; Lake Rudolf, 148*
Austin, O. P., The Commercial Development of Japan, 580†; The Commercial Importance of Samoa, 464†
Australasia—
Edwards's Australasian Catalogue, by Mr. Petherick, 231†
Mineral Waters of, Composition and Properties of the, 342†
Seven Colonies of, Statistical Account of, by T. A. Coghlan, 342†
Seismological Phenomena in, 342†
Australia—
Artesian areas of, 408
Au travers du Continent Australien, par Captain Vere Barclay, 342†
Central Australia, remarks on, by W. H. Tietkens, 463†
Contribution to Australian Oceanography, by T. W. Fowler, 463†
Coolgardie Gold Fields, Geology of, by T. Blatchford, 586†
Discovery of, The Part borne by the Dutch in the, by J. E. Heeres, 585†, 685†
Divisional Systems, by R. H. Mathews, 685†
Eaglehawk and Crow, a study of the Australian Aborigines, by J. Mathew, 685†
Federation of, 685†
Maps: Reduced Survey of, by J. Bartholomew, 127; Remarkable Maps of the Fifteenth and Sixteenth Centuries, by F. Muller, 127
South: Tides of, by R. Chapman and Captain Inglis, 586†; South Australia as a Federal Unit, by Hon. J. Cockburn, 122†

Australia—*continued.*
Was Australia discovered in the Sixteenth Century? by E. Heawood, 421 *; letter from Mr. Edmond on, 574
Western: Geology of the Coolgardie Goldfield, by T. Blatchford, 586 †; Botanical Results of Journey into Interior of, by S. Moore, 586 †; Western Australia, its Position and Prospects, by T. Chambers, 342 †
Year Book of, for 1899, by Hon. E. Greville, 231 †
Austria—
Meteorologie und Erdmagnetismus, Jahrbücher, 110 †, 576 †
Pflege der Erdkunde in Oesterreich, 110 †
Siebenter Jahres-Bericht des Sonnblick-Vereines, 329 †
Stehende Seespiegelschwankungen auf dem Traunsee, von Dr. Richter, 110 †
Austria-Hungary—
Dreiecksnetz erster, Ordnung der österreichisch-ungarischen Monarchie, von R. v. Sterneck, 221 †
Neueren Arbeiten der Mappierungs-Gruppe, von C. R. v. Steeb, 222 †
Aymara Indians, Bolivia, 20
Azerbaijan, plateau of, 504; Trade of (Foreign Office Ann.), 581 †
Azores—
Carte bathymétrique de l'archipel des Açores, Note de M. Thoulet, 329 †
Azurara's 'Chronicle of the Discovery of Guinea,' edited by C. R. Beazley, 665, 666

B.

Baden—
Veränderungen der Volksdichte im nördlichen Baden, von Dr. K. Uhlig, 222 †; note on, 89
Baedeker, K., Handbook for Travellers, The Eastern Alps, 674 †; Norway, Sweden, and Denmark, Handbook for travellers, 224 †
Bafum country and tribe, 633, 634
Bahia—
Descoberta das Lavras Diamantinas na Bahia, pelo G. Pereira, 462 †
Descripção da Bahia de Todos os Santos, por S. de Vasconcellos, 462 †
O Dique da Bahia, pelo Dr. da Silva Lima, 462 †
Riqueza mineral do Estado da Bahia, por H. Praguer, 462 †
Trade of (Foreign Office Rep.), 462 †
Baikal, Lake, Trans-Siberian Railway at, 317
Bailey, F. M., Notes on the Vegetation of New Guinea, 463 †, 585 †
Bain, R. N., Finland and the Tsar, 112 †
Baker, M. S., Lava Region of Northern California, 683 †
Baker, Rio, Chili, 96, 219
Balaton, Lake—
Resultate der wissenschaftlichen Erforschung des Balatonsees, Die Fauna, 111 †, 454 †
Balfour, Mr. A. J., remarks on the National Antarctic Expedition, 199
Baljuan, Bokhara, 602
Balkan Peninsula—
Ethnographie der Balkanhalbinsel, von R. v. Mach, 329 †
Maps: Karte der Schulsphären der türkischen Balkan-Halbinsel, von R. von Mach, 126
Ball, John, Hints . . . for Travellers in the Alps, 109 †
Balloons—
Ergebnisse der internationalen Ballonfahrten, von H. Hergesell, 124 †
Sur un voyage aérien de longue durée, de M. G. Hermite, 689 †
Balmaceda lake, 254
Baltic—
Les bruyères préhistoriques des pays baltiques, 676 †
Baltic Islands—
Chalk and Drift in Möen and Rügen, Relations of, by Prof. Bonney and Rev. G. Hill, 674 †
Baltic Sea—
Physikalischen . . . Eigenthümlichkeiten der Ostsee, von Prof. Rein, 674 †
Baluchistan, British, Photographs of, by G. P. Tate, 352
Bandelier, Mr., work of, in Bolivia, 23
Bandiagara range, Sudan, 320
Bangweulu region, Mr. Weatherley's surveys in the, 319, 561
Banpara, Ein Ausflug nach, von S. E. Peal, 114 †
Barbadoes, Annual Report (Col. Reports), 684 †
Barbier, J. V. (Biography), par Ch. Pfister, 124 †
Barclay, Capitaine, Au travers du continent australien, 342 †; Mission à l'île de Pâques, 342 †
Barnes, H. T., On some Measurements of the Temperature of the Lachine Rapids, 229 †, 345 †
Baro-cyclo-nometer, the, 465 †
Barometric Methods, Determination of Heights by, by T. W. Fowler, 343 †
Barometric pressure, tables of, in the antarctic, 418
Ba-Rotse, Au, par E. Béguin, 117 †
Barré, H., Les Colonies Portugaises, 237 †
Barré, O., La Géographie Militaire et les nouvelles méthodes géographiques, 110 †; note on, 672
Barré, P., La Belgique maritime, 576 †; Les États-Unis d'Amérique et leur extension en 1899..461 †
Barrett, Hon. J., Siam and its Neighbours, 582 †
Barrett-Hamilton, G. E. H., Glimpses of

Life in the Far North-East, 335 †; Kamchatka, 226 †
Bartholomew, J.—
Cyclists' Road-map of Glasgow District, 468
Physical Atlas, vol. iii. Atlas of Meteorology, 590; Review on, by Dr. H. R. Mill, 649
Reduced Ordnance Survey of England and Wales, 238, 347, 692
Reduced Survey Map of Australia, 127
Baschin, O., Bibliotheca Geographica, 690 †
Bassama tribe, Benue region, 631
Bathurst, The Gold-diggings at, by Mrs. Huxley, 342 †
Bathymètre fondé sur l'emploi de cylindres crushers, sur un, par MM. Charbonnier et Galy-Aché, 587 †
Bathymetrical Conditions of the Antarctic Regions, by H. Arçtowski, 77 *; Bathymetrical Observations in the Italian Lakes, by Dr. G. de Agostini, 441
Battermann, Dr., Resultate aus den Polhohenbestimmungen in Berlin, 344 †
Battisti, C., Gli studi limnologici italiani, 111 †
Batum and District, Trade of (Foreign Office Rep.), 335 †
Bauchi, Kingdom of, Notes on a Journey to Pali and Mamaidi in, by P. A. Clive, 177 *; Lieut. Bryan's journey to, 447
Bauer, L. A., The Magnetic Work of the United States Coast and Geodetic Survey, 461 †; Earth-air Electric Currents, 588 †
Baum, Dr., Expedition in the Southern Interior of Angola, 665
Baumann, Dr. O., Die Insel Pemba und ihre kleinen Nachbarinseln, 458 †; obituary of, 574
Bavaria—
Entwicklung und die Aufgaben der bayerischen Landeskunde, von Dr. E. Oberhummer, 453 †
Baye, B. de, Au sud de la chaîne du Caucase, 335 †; Au nord de la chaîne du Caucase, 680 †
Beach Cusps, by Mark Jefferson, 232 †
Beadnell, C. M., On the Decline of Scurvy afloat, 589 †
Bear Island, Arctic ocean, 55–59; letter from Sir Martin Conway on, 328; Några upplysningar till den nya Kartan öfver Beeren Eiland, af A. Nathorst, 464 †
Bear, W. E., Flower and fruit-farming in England, 224 †
Beatus group of early maps, 621–629
Beazley, C. R., Azurara's 'Chronicle of the Discovery of Guinea,' edited by, 665, 666; New Light on some Mediæval Maps, 620 *
Bechuanaland Railway, Correspondence with Mr. C. Rhodes relating to the, 458 †
Beck-Bernard, Mme., Missions Franciscaines du désert argentin, 120 †
Begg, A., Early Exploration in North-West Canada, 461 †; Vancouver Island, 583 †
Béguin, E., Au Ba-Rotse, 117 †
Béhagle, Mission de Haut-Oubangui, 459 †; mission to Lake Chad, 320
Beira, Trade of (Foreign Office Rep.), 118 †
Beirut and Coast of Syria, Trade of (Foreign Office Rep.), 582 †
Belck und Lehmann, Drs., Reisebriefe von der Armenischen Expedition, 113 †
Belgium—
Antarctic Expedition, 231 †, 77
Belgique Maritime, par P. Barré, 576 †
Bruges Ship Canal, by L. F. Vernon-Harcourt, 330 †
Climat de la Belgique en 1897, par A. Lancaster, 330 †
Intérêt des relevés journaliers des heures de Soleil, par A. Lancaster, 452 †
Observations météorologiques faites à l'Observatoire Royal de Belgique, 452 †
Vallon des Chaudières, par Ed. Rahir, 330 †
Belgrano river and mount, 266; Lake, 259, 265
Bell, Colonel Mark, The Highway of the Nations, 678 †
Bell, R., Rising of the Land around Hudson Bay, 229 †
Bellagamba, G., Sull' influenza ... della componente orizzontale del magnetismo terrestre, 588 †
Bellet, A., La Pêche de la morue sur le grand banc de Terre-Neuve, 461 †
Bellett, D., La valeur économique de Samoa, 464 †
Benest, H., Submarine Gullies, etc., beneath the Sea-level, 394 †
Benguella, Estudios dos planalto do districto de, por A. de Andrade, 682 †
Benue, Regions of the, by L. H. Moseley, 630 †
Beresford, Lord Charles, The Break-Up of China, etc., 534 †
Berg, Prof. C., Anales del Museo Nacional de Buenos Aires, 341 †
Bergholz, Dr., Die Taifune vom Sept., 1897..114 †
Berlin—
Die Stadt, Festschrift der Stadtgemeinde, 675; Umgebungen, Handbuch für reisende, von Dr. K. Baedeker, 675 †
Geographen-Kongress, 1899, Programm der Wissenschaftlichen Ausflüge, 86, 453 †
Maps: Geologische Uebersichtskarte von, 691; Neuer Verkehrs-Plan von Gross-Berlin, von G. Müller, 691
Seventh International Geographical Congress at, Proceedings of, 537–545; Resolutions of, 543; Plan of Excursions, 86
Bernard, A., La Question du Transsaharien, 337 †

Berry, J., Proceedings of the Convention of Weather Bureau Officials, 465 †
Bertacchi, C., Geografi italiani all' estero, 237 †
Bertaux, E., Étude d'un type d'habitation primitive, 346 †
Berthaut, Colonel, La Carte de France 1750–1898, Étude historique, 222 †
Bertolini, Prof., Sulla determinazione delle altitudini presso gli antichi, 346 †
Bez au Daghi, Lake Urmi region, 511
Bezold, W. von, Ueber die Zunahme der Blitzgefahr, 233 †
Bhagavata Purana, Topographical List of the, by Rev. J. Abbott, 335 †
Bibliography—
Bibliographie Géographique annuelle, 589 †
Geographical Works published in the United States, by J. M. Boutwell, 466 †
Index to Subject Bibliographies, by A. Newman, 236 †
Katalog der Bibliothek der deutschen Akademie der Naturforscher, von O. Grulich, 236 †
Bibliotheca Geographica, von O. Baschin, 690 †
Bilbao and District, Trade of (Foreign Office Rep.), 577 †
Binger, M., Founders' medal awarded to, 102
Biography, Dictionary of National, by Sidney Lee, 124 †
Bion, W. A., Notes on the Meteorology of Vizagapatam, 115 †
Biscay, Bay of—
Pêche du thon dans le golfe de Gascogne, par MM. Odin et Rabilier, 453 †
Bismarck-Archipel und die Salomons-Inseln, von Dr. Hahl, 463 †
Bjerknes, V., Ueber . . . die Mechanik der Atmosphäre und des Weltmeeres, 687 †
Black, W. G., Ocean Rainfall by Rain-Gauge Observations at Sea, 465 †
Blackwater Fever, by W. H. Crosse, 236 †
Bladen, F. M., Historical Records of New South Wales, 585 †
Blatchford, T., The Geology of the Coolgardie Goldfields, 586 †; and E. Allhusen, Geological Map of Coolgardie, 695
Blazac, M., on the geography of Nemensha country, 208
Bliss, F. J., First Report on the Excavations at Tell Zakarîya, 116 †
Blondiaux, Lieut., explorations on the Ivory Coast, 210; Le Boucle du Niger, 118 †
Blumentritt, F., Die Filipinos als Herren im eigenen Hause, 226 †
Boas, F., Daniel G. Brinton, 689 †
Boehm, G., Reiseskizzen aus Transkaspien, 336 †
Boer Republics, 'Daily Mail' Map of the, 694
Bohemia—
Deutsch-tschechische Sprachgrenze in Nordböhmen, von P. Langhans, 674 †
Bohlin, K., Ueber eine sonderbare . . . beobachtete Nordlichterscheinung, 344 †
Böhm, Dr. A., Zur Erinnerung an Franz von Hauer, 235 †; Zur Biographie Friedrich Simony's, 347 †
Boillet, L., Aux Mines d'Or du Klondyke, 339 †
Bokhara, Travels in, by W. R. Rickmers, 596 *
Bolivia—
Einige Wochen auf der bolivianischen Puna, von C. Nusser-Asport, 684 †
Bolivian Andes, Exploration in the, by Sir M. Conway, 14 *, 341 †
Bolivian-Chilean boundary, 322
Bonin, M., journey in China, 206
Bonin et Grenard, MM., Les dernières voyages dans le Tibet Oriental, 457 †
Bonney, Prof., remarks on "Explorations in the Bolivian Andes," 31: and Rev. E. Hill, Relations of the Chalk and Drift in Möen and Rügen, 674 †
Bonola, Dr. F., Le Musée de Géographie et d'Ethnographie, 236 †
Boraston, J. M., Brazil in 1898..584 †
Borchgrevink, Mr., expedition to the Antarctic, 9, 438
Bordeaux and District, Trade of, 453 †
Borg, V., Fysillis-maantieteellisiä tutkimuksia Kalvolan pitäjässä, 331 †
Borneo—
British North Borneo, by Sir J. Jardine, 115 †
Geologie van het Stroomgebied der Kapoeas-rivier, door N. W. Easton, 679 †
Bornholm, von Dr. Buschan, 576 †; Bilder von, von J. Geboschus, 675 †
Bosnia—
Jajce, die alte Konigstadt Bosniens, von Dr. Bräss, 329 †
Botanical Aims of South Polar Research, Dr. Neger on, 448
Bothnia—
Senkvartära Landhöjningen kring Bottniska Viken, af G. de Geer, 676 †
Botletli river, South Africa, 311
Boultbee, J. W., Artesian Water in New South Wales, 686 †
Bourdarie, P., La Colonisation du Congo Français, 118 †
Bourinot, J. G., Canada during the Victorian Era, 119 †
Bourne, H. R. F., The Uganda Protectorate and its Relation to the Sudan, 119 †
Boutwell, J. M., Bibliography of Geographical Works published in the United States, 466 †
Bouvet Island: Wiederauffindung der Bouvet-Insel, von W. Sachse, 458 †
Bouysson, J., Renseignements sur la région côtière au nord de Libreville, 118 †

Bradley, C. B., Exploration of the East Creek Amphitheatre, 120 †
Brady, —, Trade of Kiukiang, 457 †
Brady glacier, Alaska, 533, 673
Bramabiau subterranean river, 405
Brătianu, Gen., Trebuinta de a se face cadastrul României, 455 †
Bray, F. de, Enterprises en Chine, 456 †
Brazil—
As explorações do Sr. Apolinario Frot, 121 †
Bahnen Neu-Hamburg-Torres, 584 †
Brazil in 1898, by J. M. Boraston, 584 †
Considérations économiques sur le Brésil, par L. F. Viala, 121 †
Franco-Brazilian contested territory, M. Brousseau on, 212
Materiaes para a flora amazonica, pelo Dr. J. Huber, 462 †
Meyer, Dr. Hermann, journey in, 324; über seine zweite Reise in Central-Bresilien, 341 †
Nouvelle Pologne, état de Paraná, par J. de Siemiradzki, 462 †
Trabalhos restantes ineditos da Commissão Geologica do Brazil, 462 †
Voyage entre Tocantins et Xingú, par H. Coudreau, 230 †
Brenier, H., report on Lyons Commercial Mission in China, Review on, 652
Bretschneider, E., History of European Botanical Discoveries in China, Review on, 654
Brewer, W. M., Prospecting in British Columbia, 228 †
Brice, A. M., letter from, on Andrée's route, 575
Brigham, Prof. A P., The Eastern Gateway of the United States, 340; Physical Geography in Secondary Schools, 467 †
Brinton, Daniel G. (Biography of), by W. J. M., and Franz Boas, 689 †; On two unclassified recent Vocabularies from South America, 121 †
Brisbane River, Floods in the, by C. J. R. Williams, 464 †
British and Dutch in South Africa, by H. A. Bryden, 682 †
British Association, Dover, Proceedings of, 546; Address to Geographical Section of the, by Sir J. Murray, 688 †
British Colonies—
Colonies Anglaises, Les, par G. Chevilliard, 236 †
Colonies and the Century, by Hon. Sir J. Robinson, 236 †
Kolonialpolitik Grossbritanniens, von Dr. A. Zimmermann, 124 †
British Columbia—
Illecillewaet and Asulkan Glaciers of, by G. and W. Vaux, 683 †
Prospecting in, by W. M. Brewer, 228 †
Squamish Indians of, Notes on, by Prof. Hill-Tout, 119 †
British Empire—
Etappenstrasse von England nach Indien, etc., von C. Wachs, 690 †
Queen's Empire, The, 236 †
British Isles: *see* United Kingdom
British Mountain Tops, Winter Minima on, 113 †; note on, 315
British New Guinea—
British New Guinea, by Sir W. Macgregor, 231 †; ditto, Annual Report, by Sir W. Macgregor, 231 †; Despatch . . . reporting Visit of Inspection, 231 †
Brittany, Prehistoric Monuments of, by Prof. Macallum, 330 †
Brose, M., Die deutsche Kolonialliitteratur, 467 †
Brousseau, M., on the Franco-Brazilian contested Territory, 213
Brown Coal Mining in the Rhineland, 110 †
Brown, Major, The Land of Goshen and the Exodus, 117 †
Brown, P., Temperature Records on British Mountain-tops, 315
Brown, T. F., Our Coal Supplies, 113 †
Brown, W. H., On the South African Frontier, 582 †
Bruges Ship Canal, etc., by L. F. Vernon-Harcourt, 674 †
Bryan, Lieut., journey to Bauchi, in Nigeria, 447
Buchan, Dr. A., Tidal Currents of the North Sea, 588 †
Buchanan, J. Y., On the Physical and Chemical Work of an Antarctic Expedition, 552 *
Buchs, V., Voyages en Abyssinie, 117 †
Buckman, S. S., The Development of Rivers, etc., 113 †; on the Genesis of the Severn, 88
Budapest—
Statistisches Jahrbuch, von Dr. G. Thirring, 111 †
Buenos Aires, Lake, Patagonia, 354
Buenos Aires—
Anales del Museo Nacional de Buenos Aires, por Prof. C. Berg, 341 †
Annuaire Statistique de la Ville de Buénos-Ayres, 684 †
Anuario de la Dirección General de Estadistica, 684 †
"Bureau Démographique" at, 669
Bukowski, G. von, Geologische Uebersichtskarte der Insel Rhodus, 455 †
Bulatovitch, M., explorations south of Abyssinia, 664
Bulgaria—
Sources et Pertes des Eaux en Bulgarie, par MM. Scorpil, 110 †
Bullock, T. L., Intercourse in the Past between China and Foreign Countries, 456 †
Bulugebietes, nördlichen, Begleitworte zu der Karte des, von Max Moisel, 460 †
Bumba river, Congo basin, 445

Bundooism, Modern, in Pagan Africa, by Rev. F. Snelson, 458 †
Buner, Ancient Topography of, Dr. Stein on, 660
Bure, P., Tientsin, 579 †
"Bureau Démographique" at Buenos Aires, 669
Burls, H. T., Ascent of Mount Kinabulu, 207
Burma—
Myingyan, etc., Districts in Burma, Geology of Parts of the, by G. Grimes, 458 †
Third Burmese War, by Major Keene, 115 †
Burma-China Boundary Commission surveys, 314
Burton's Pilgrimage to Mecca, 334 †
Buscalione, Dr., expedition to the Amazon Valley, 213
Buschan, Dr., Bornholm, 576 †

C.

Cable fractures, cause of, 394
Cabot—
Cabot Celebration at Halifax, 235 †
Cabotian Discovery, The, by J. B. Thacker, 235 †
Cabots, The, Notes on Certain Papers contributed to the Transactions of this Society, by H. Harrisse, 466 †
Voyages of the Cabots, by S. E. Dawson, 235 †
Cacaaca, Mount, Bolivia, 18, 21
Cadiz, Consular District of, Trade of (Foreign Office Rep.), 577 †
Calcutta, The Port of, by Sir C. Stevens, 334 †
California—
Denudation of Vegetation, Observations on the, by M. Manson, 683 †
Gully formation at Salinas landing, 412
Northern, Lava Region of, by M. S. Baker, 683 †
Southern California, by J. F. Chamberlain, 461 †
Cambridge—
Anthropological Expedition to Torres Straits and Sarawak, 302
Geography at, Mr. Yule Oldham's report on, 88
Cameroons: *see* Kamerun
Campbell, J., Origin of the Haidahs of the Queen Charlotte Islands, 119 †
Campbell, W. D., Aboriginal Carvings of Port Jackson and Broken Bay, 463 †
Canada—
Barren Lands of, Natural Resources, by J. B. Tyrrell, 119 †
Canada during the Victorian Era, by J. G. Bourinot, 119 †
De Carlton-House au Fort Pitt, par E. Petitot, 119 †
Entdeckungsgeschichte Canadas und seiner Grenzgebiete, von Dr. Nederkorn, 338 †
Canada—*continued.*
Ethnological Survey of, 228 †
Geographic Board of, 668
Geological Survey of, Annual Report, 229 †; Summary Report, 119 †
Interior, Department of the, Annual Report, 228
Laurentian highlands of, 482
Maps: General Map of North-Western Part of (Surveyor-General), 469; Geological Survey of, by G. M. Dawson, 126; Sectional Maps (Top. Surveys Branch), 349, 695
North-West, Early Exploration in, by A. Begg, 461 †
North-Western Tribes of, 339 †
Rocky Mountains of, Type of Lake Formation in the, by W. D. Wilcox, 339 †; Exploration in the, by Prof. Norman Collie, 119 †, 461 †; letter on, 101
Tides and Currents in Canadian Waters, Survey of, by W. Bell Dawson, 461 †
Up the Mackenzie River to the Polar Sea, by Miss E. Taylor, 119 †
Canadian International boundary work in Alaska, 523
Canal, American Inter-Oceanic, Dr. Nimmo and Prof. Johnson on the, 569, 685 †
Canary Islands, Trade of (Foreign Office Rep.), 458 †
Canton—
Trade of (Foreign Office Rep.), 678 †
Voyage de l'Ambassade Hollandaise de 1656 à travers la Province de Canton, par C. Huart, 456 †
Cap Breton, Fosse de, 406
Cape Cod District, Reservoirs of the, by N. S. Shaler, 340 †
Cape of Good Hope, Department of Agriculture, Annual Report of the Geological Commission, 117 †
Cape Verde Islands—
Dalle Isole del Capo Verde, del L. Fea, 117 †, 582 †
Capenny, S., The Khedivic Possessions in the Basin of the Upper Ubangi, 336 †
Carey, F. W., A trip to the Chinese Shan States, 378 *
Carli, M., La baia di San-men, 114 †; Il Ce-kiang, Review on, 655
Carnegie, D. W., award to, 103, 104
Carolina, North, Slavery in the State of, by J. S. Bassett, 684 †
Caroline Islands—
Cession of, to Germany, 97
Die Karolinen, von H. Singer, 585 †
Landeskunde der Karolinen, Umrisse zu einer, von Dr. A. Kirchhoff, 585 †
Carpenter, Captain, The West Indian Hurricane, 230 †
Carranza, Dr. L., pol Dr. C. Chacaltana, 689 †
Carren-leufu river, 360

Cartography—
Leitfaden der Kartenentwurfslehre, von Dr. Zöppritz, 122 †
Technik der Kartenerzeugung, von Freiherrn von Hübl, 232 †
Carus, Prof. J. V., On the International Catalogue of Scientific Literature of the Royal Society, 466 †
Caspian—
Karabugas-Meerbusen des Kaspischen Meeres, von N. v. Seidlitz, 581 †
Castro, Dr. L. de, De Zeilah au Harar, 583 †
Catalogues—
Catalogue de la Bibliothèque de feu le Dr. Veth, 466 †
International Catalogue of Scientific Literature, by C. Adler, 466 †; by Prof. Carus, 466 †; Geology and Geography in, by Prof. Shaler, 467 †
Société Géographie de Lille, Catalogue de la Bibliothèque, 690 †
Cattolica, P. L., Stazione Astronomica a San Cataldo di Bari, 464 †
Caucasus—
Au nord de la chaîne du Caucase, par Baron de Baye, 680 †
Au sud de la chaîne du Caucase, par Baron de Baye, 335 †
Explorations in the, M. de Déchy's, 660
Hydrography of the, by V. Dingelstedt, 335 †
Photographs of, by M. de Déchy, 469
Tsiteli, First Ascent of, by C. T. Dent, 226 †
Uschba im Kaukasus, von W. Rickmer-Rickmers, 116 †
Causses, subterranean rivers in the, 404
Caves of Yorkshire, Mr. Cuttriss on the, 658
Celebes—
De adoptie in verband met het matriarchaat bij de Toradja's von Midden-Celebes, door A. C. Kruijt, 580 †
Census, Twelfth, of the United States, 322
Centrosphere, Solidity of the, 435, 436
Cerigo Island—
Originalkarte du Insel Kythera, von Dr. Leonhard, 126
Ceylon—
Administration Reports, by F. H. Grinlinton, 678 †
Botany of the Ceylon Patanas, by H. W. Pearson, 456 †
Dutch East India Company in, Monumental remains of, by F. H. de Vos, 678 †
Land Legislation in, Correspondence relating to, 456 †
Note sur le plus ancien entrepôt de commerce, par J. Leclercq, 678 †
Chablais, L'origine du, par M. Lugeon, 222 †
Chacaltana, Dr. C. (Biography of), Dr. L. Carranza, 689 †
Chad, Lake, M. de Béhagle's Mission to, 320
Chaix, E. (Biography of), Dr. E. Dufresne, 124 †
Chalmers, R., Report on Surface Geology . . . of Quebec, 683 †
Chamberlain, J. F., Southern California, 461 †
Chamberlin, Prof., Lord Kelvin's Address on the Age of the Earth as an Abode fitted for Life, 465 †
Chambers, T., Western Australia, its Position and Prospects, 342 †
Chambezi river, Central Africa, 444
Chamonix and the Range of Mont Blanc, by E. Whymper, 577 †
Champex, Lac de, 677 †
Chanoine, Captain, Mission Voulet-Chanoine, 459 †; expedition in French Sudan, 320
Chantres Reisen im Antitaurus und in Cilicien, 226 †
Chapman, R., and Captain Inglis, The Tides of South Australia, 586 †
Charlottetown, Pictou, and St. Paul Island, Tide Tables for, 338 †
Charnay, D., Une excursion au Yémen, 224 †
Charters Towers Goldfields, Geological Map of, 127
Charts, New—
Admiralty, 127, 349, 591
Cancelled, 128, 350, 591
Corrected, 128, 350, 591
Meteorological Charts of the Southern Ocean, 695
Russian, 351, 695
United States Hydrographic, 128, 239, 469
Chefoo, Trade of (Foreign Office Rep.), 456 †
Che-Kiang—
Il Ce-Kiang, por E. Pini, 678 †
Il Ce-Kiang, Studio geografico-economico dell Dott. M. Carli, 579 †; Review on, 655
Province du Tché-Kiang, par A. Fauvel, 678 †
Chemisch-geologische Tiefsee-Forschung, von Dr. Natterer, 345 †
Chen-yuan district, 641, 642
Chesil Beach Shingle, On the Grading of the, by V. Cornish, 578 †
Chevalier, M., on steam navigation on the Upper Yang-tse, 316
Chevilliard, G., Les Colonies Anglaises, 236 †
Chicago—
Pleistocene Features and Deposits of the Chicago Area, by Fr. Leverett, 584 †
Trade of Chicago and District (Foreign Office Rep.), 584 †
Chignecto Bay, Marsh and Lake Region at the Head of, by G. J. Trueman, 338 †
Chile—
Pisagua et Antofagasta, Notice sur le territoire compris entre, par R. Latrille, 585 †
Dr. Steffen's expedition in, 96
Chilean Boundaries, 322

China—
Admiralty Surveys on coasts of, 85
All-British Railway to, by C. A. Moreing, 678 †
Avvenire economico della Cina, dell P. Gribaudi, 456 †
Baia di San-Men, del M. Carli, 114 †; Baie de San-Moun, La, 456 †
Bonin's, M., Journey in, 206
Books on, Recent, Review by G. G. Chisholm, 652
Break-Up of China, etc., by Lord Ch. Beresford, 334 †
Chemins de fer en Chine, par J. Servigny, 114 †; ditto, par J. de Marcillac, 457 †
China, by H. E. Gorst, 334 †; ditto, by Mrs. Little, 579 †
Diamants Chinois, par A. Fauvel, 579 †
En Chine: La part de la France, 114 †
Entreprises en Chine, par F. de Bray, 456 †
European Botanical Discoveries in, History of, by E. Bretschneider, Review on, 654
Exchange of Notes between the United Kingdom and Russia with regard to their Railway Interests in, 456 †, 457 †
Geographical Notes, VI. Ma-it—Maiëp-ung, by G. Schlegel, 334 †
Imperial Maritime Customs: Medical Reports, 456 †; Returns of Trade, etc., 679 †
Intercourse in the Past between China and Foreign Countries, by T. Bullock, 456 †
Intimate China, by Mrs. A. Little, 334 †
Italia in Cina, by Prof. Ricchieri, 456 †; Italia e la Cina, Conferenza . . . dal Prof. Nocentini, 456 †
Kurze Zusammenfassung . . . meiner Reise in China, von E. von Cholnoky, 456 †
Lighthouses, etc., List of, 457 †
Lyonnaise, Mission, d'Exploration Commerciale en Chine, Review on, 652
Maps: China Inland Mission Map of, 126
Minkiang, A Travel along the, by Kinosuke, 334 †
Notice géographique . . . sur le haut Fleuve Rouge, 114 †
Ostküste Chinas, Meine Erlebnisse an der, von E. S. Fischer, 579 †
Portuguese Intercourse with China, Early, by C. A. Montalto de Jesus, 579 †
Prospect in Chinese Trade, The, by G. F. Scott Elliot, 456 †
Spheres of Interest and the Open Door, by R. S. Gundry, 334 †
Through China with a Camera, by J. Thomson, 114 †
Trade and Trade Reports, Returns of, 457 †
China Sea Directory, 457 †
Chinese and Burma Boundary Commission, 314
Chinese Shan States, A Trip to the, by F. W. Carey, 378 *
Ching-chi, iron foundry works at, 644
Chinkiang, Trade of (Foreign Office Rep.), 678 †
Chinnampo Port, Korea, 561
Chisholm, G. G., Review on Recent books on China, 652
Chitichun Region, Notes on the Geological Structure of the, by Dr. C. Diener, 579 †
Choate, Mr., remarks on presenting American Medal to Sir John Murray, 104
Choga, Lake, Central Africa, 132
Cholnoky, E. de, Map of the Mouth of the Yang-tse-Kiang, 349
Chungking, Trade of (Foreign Office Rep.), 456 †
Church, Colonel, remarks on "Explorations in Patagonia," 376; remarks on "Explorations in the Bolivian Andes," 33
Church Missionary Society, Proceedings of the, 690 †
Clifford, H., Life in the Malay Peninsula, 580 †
Climate and Colonization, 346 †; Climate of the Antarctic, 413; Climate of the Congo, 459 †
Climatology—
Anwendung . . . der medicinischen Klimatologie, von Dr. Polis, 687 †
Clive, P. A., Notes on a Journey to Pali and Mamaidi, 177 *
Clock-Rates and Barometric Pressure . . . at Mare Island Observatory, by Ensign E. Hayden, 464 †
Clouds—
Wave or Billow Clouds, by A. J. Henry, 465 †
Clozel, F. J., La Côte d'Ivoire, 459 †
Clutterbuck, W. J., Photographs of Great Luchu Island, 592
Coal—
Our Coal Supplies, by T. F. Brown, 113 †
Coal and iron-smelting in Manchuria, 295, 296
Coal in district of Kwei-yang, 642
Cockburn, Hon. J. A., South Australia as a Federal Unit, 122 †
Cocos-Keeling and Christmas Islands, Report on (Col. Reports, Ann.), 115 †
Codrington, Mr., Expedition to Dr. Livingstone's Tree, 317, 444
Coello, Colonel, etc. (Biography of), par L. Drapeyron, 124 †
Coffee and Indiarubber Culture in Mexico, by M. Romero; note on, 94
Coghlan, J. A., A Statistical Account of the Seven Colonies of Australasia, 342 †
Collie, J. Norman, Climbing the Canadian Rocky Mountains, 119 †; Exploration in the Canadian Rockies, 461 †; letter from, on the Canadian Rockies, 101

Collingwood, W. G., and J. Stefansson, A Pilgrimage to the Saga-Steads of Iceland, 675 †
Collins, R. M., Early Explorations on the Logan, etc., 122 †
Colombia—
Glacial Phenomena of, by R. Blake White, 684 †
Ores of, by H. W. Nichols, 684 †
Colonies Anglaises, par G. Chevilliard, 236 †; Colonies and the Century, by Hon. Sir J. Robinson, 236 †; Colonies Portugaises, par H. Barré, 237 †; Kolonial-Handels, Adressbuch, 691 †
Colonizzazione e Conquista, dal Prof. Ricchieri, 346 †
Colorado—
Mining Industries of the Telluride Quadrangle, Report, by C. W. Purington, 683 †
Colour Code, On a Correct, by J. A. Harvie-Brown, 125 †
Commercial Geography of the British Isles, by A. J. Herbertson, 677 †
Como, Lake, depth of, 441
Congo—
Basin, Dr. Pleyn's Explorations in the, 444
Climat du Congo, Court aperçu du, par A. Lancaster, 459 †
Expeditions: M. Foureau's, 319, 565
French: Concessions au Congo Français, 118 †; Colonisation du Congo Français, par P. Bourdarie, 118 †; Renseignements sur la région côtière au nord de Libreville, par J. Bouysson, 118 †
Géologie du Congo Occidental, par J. Cornet, 681 †
Haut-Oubangui vers le Chari, du, par Captain Julien, 681 †
Lower, Progress of railway, 565; M. Droogman's map of, 565
Maps: Carte du Bas-Congo, par H. Droogmans, 694
Museum, Publications of the, 566
Negres du Congo, Ma captivité chez les, par M. Besson, 582 †
Organisation du Congo français, 337 †
State: Age de la Pierre au Congo, par X. Stainier, 227 †; New railway project for the, 211
Trade Returns, Summary of (Foreign Office Rep.), 459 †
Continental and Oceanic Areas, Evolution of the, 434
Conway, Sir M., Climbs in the Andes, 584 †; Exploration in the Bolivian Andes, 14 *, 341 †; letter from, on Bear Island, 328; letter from, on the Advance and Retreat of Sea-ending Glaciers, 672
Cook, Dr. F., Through the First Antarctic Night, 686 †
Coolgardie, Geological Map of, by Blatchford and Allhusen, 695
Coolidge, W. A. B. (Biography of), Christian Almes, 689 †
Coote, C. H., obituary of, 99
Copeland, W., letter from, on Rhodesian Art, 101
Copenhagen—
Port-franc de Copenhague, par A. Ferrière, 576 †
Cordeiro, L., Annotaçoes historicas, 689 †
Cordillera of the Andes, 244 *et seq.*
Cordillera Real, Bolivia, 15; action of rivers in the, 16; mineral products of, 18; flora of, 20, 32; geology of, 31
Cordoba—
Alturas, Tomadas en la provincia de Córdoba, por O. Doering, 584 †
Soto á Villa Mercedes, por O. Doering, 584 †
Corkagniney, On an Ancient Settlement in the South-west of the Barony of, by R. A. S. Macalister, 333 †
Cornish, V., On the Grading of the Chesil Beach Shingle, 578 †
Coronas, Father, on the eruption of Mayon, 92
Corsica—
Corse, La, Étude anthropogéographique, par F. Ratzel, 453 †
Korsische Städte, von F. Ratzel, 577 †
Corunna, Trade of (Foreign Office Rep.), 113 †
Cosmogony: Nouvelle théorie cosmogonique, par A. Duponchel, 125 †
Costa, Cap. G. da, Gaza, 1897–1898..682 †
Cotton trade in the Shan States, 390
Coudreau, H., Voyage entre Tocantins et Xingú, 230 †
Cowles, H. C., Ecological Relations of the Vegetation on the Sand-Dunes of Lake Michigan, 683 †; note on, 668
Crammer, Prof. H., Eishöhlen- und Windröhren-Studien, 345 †; und Prof. R. Sieger, Untersuchungen in den Ötscherhöhlen, 221 †
Crater Lake, Oregon, by J. S. Diller, 341 †
Crawford, D., Photographs of country in neighbourhood of Lake Mweru, 352
Crete—
Correspondence respecting the Affairs of, 223 †
Crète autonome, La, par E. H. Moguez, 455 †
Report by Her Majesty's Commissioner in, 675 †
Crook, H. T., Orthography, etc., of Names for the National Maps, 691 †
Crookes, Sir W., Address by, 346 †
Crosse, W. H., Blackwater Fever, 236 †; The Treatment of Malaria and Blackwater Fever, 125 †
Cuba—
Independence of, by A. G. Pérez, 230 †
Industrial Cuba, by R. P. Porter, 230 †
Maps: Military Telegraph Lines (U.S. War Department), 239

Cugnin, E., L'Heure et la Longitude Universelles, 586 †
Cuillins, Skye, Glaciated Valleys in, by A. Harker, 224 †
Curaçoa and Dependencies, Trade of (Foreign Office Rep.), 462 †
Currents Papers, No. 3, by H. C. Russell, 465 †
Curtis, G., and J. Woodworth, Nantucket a Morainal Island, 340 †
Curve isometriche, Brevi considerazioni sull' impiego delle, per O. Marinelli, 343 †
Cusack-Smith, —, Trade of Valparaiso and District, 462 †
Cuttriss, S. W., on the Caves of Yorkshire, 658
Cyclone—
  Ueber den Genauigkeitsgrad der Bahnbestimmung, von E. Knipping, 233 †
Cyprus—
  Agriculture in, Report on, by P. Gennadius, 455 †
  Annual Reports, 455 †
  Development of, by Colonel Fyler, 111 †

D.

Daghestan mountains, 660
Dakota—
  Caverne de Cristal, La, par Miss Owen, 229 †
  Eastern South, Well-boring and Irrigation in, by N. H. Darton, 341 †
  South, Bad Lands of, by N. H. Darton, 684 †
Dalmatia—
  Dalmatien, von Dr. Havass, 110 †
d'Almeida, P., La Colonisation russe dans les gouvernements d'Oufa et d'Orenbourg, 112 †
Daly, Chief Justice C. P., obituary of, 572
Dama country, Benue region, 635
Damascus, Trade of (Foreign Office Rep.), 582 †
Damian, J., Seestudien, Lago di Serraia, etc., 221 †
Danckelman, Dr., on the Harmattan wind, 445
Dandushka barriers, Bokhara, 611–616
Danduschka, Die Barren der, von W. R. Rickmers, 582 †
Danish expedition to East Greenland, 449; Danish Ingolf-Expedition, The, 587 †
Dantz, Dr., geological explorations in German East Africa, 446
Danube—
  Lucrările Comisiunei Europeane a Dunărei, de D. A. Sturdza, 452 †
Darjiling—
  Besuch im Dardschiling, Ein, 579 †
Darton, N. H., Bad Lands of South Dakota, 684 †
Darwin, C., on Patagonia, 369, 372, 375
Darwin, Major, Review on "The International Geography," 656
Davis, A. P., Report of Progress of Stream Measurements, 341 †; Nicaragua and the Isthmian Routes, 462 †
Davis, Prof. W. M., Physical Geography, Review by H. R. Mill, 183; The Circulation of the Atmosphere, 586 †; The Geographical Cycle, 481 *; The Peneplain, 344 †
Dawkins, Major, Précis of Information concerning Southern Rhodesia, 338 †
Dawson, Dr. G. M., Geological Survey Map of Canada, 126
Dawson, Dr. S. E., The Voyages of the Cabots, 235 †
Dawson, W. Bell, Survey of Tides and Currents in Canadian Waters, 461 †
Day—
  Where does the Day begin? by F. H. Holmes, 464 †
Deasy, Captain H. P., letter from, on the Khotan river, 451; return of, 660
Debasien, Mount, East Africa, 135, 310
Debundja, Regenmessungen in, 460 †
Déchy, M. de, Photographs of the Caucasus, 469; explorations in the Caucasus, 660
Deep Ghyll, The West Wall of, by J. W. Robinson, 578 †
Deep sea—
  Deposits, 432; animals, 434
  Expedition: German, 10; ditto, by Drs. Chun, Schott, and Sachse, 587 †; Deutschen Tiefsee Expedition, von Dr. G. Schott, 345 †; Chemisch-geologische Tiefsee-Forschung, von Dr. Natterer, 345 †; Von der deutschen Tiefsee-Expedition, 118 †
  Exploring expedition of the *Albatross*, by H. M. Smith, 688 †
  Observations, methods of, 186, 187
  Temperatures, 35
Deeps, great, of the ocean, 428, 429
Delagoa Bay, the Key to South Africa, by M. G. Jessett, 682 †
Delagoa, Directory for 1899..337 †
Delebecque, A., et E. Ritter, Quelques lacs des Pyrénées, 112 †
Denmark—
  Kommissionen for videnskabelig Undersøgelse af de danske Farvande, 330 †
  Maps: Generalstabens topografiske Kaart over Danmark, 691
  Observations météorologiques-nautiques, 110 †
  Trade and Agriculture of (Foreign Office Rep.), 452 †
Dent, C. T., The First Ascent of Tsiteli, 226 †
Deputation to the Government for the National Antarctic Expedition, 190
Descamps, A., Village Arabes en France, 675 †
Des Vœux, Sir W., The Connection of England with Newfoundland, 683 †
Détrez, G., Recherches sur les Distances géographiques, etc., 687 †
Diatom ooze, 433

Diaz, Bartholomew, Pillar erected by, near Angra Pequena, Note on, by W. L. Sclater, 337 †
Dickenson, B., and A. Andrews, Educational Map Slides produced by, 673
Dickson, H. N., Prof. Pettersson on Methods of Oceanographic Research, 185 *
Dictionary of National Biography, by Sidney Lee, 124 †
Diener, Dr. C., Notes on the Geological Structure of the Chitichun Region, 579 †; Noch ein Wort über die Katastrophe von Sodom and Gomorrha, 226 †; Ueber die Bedeutung des geographischen Moments in geologischen Lokalmonographien, 688 †
Diller, J. S., Crater Lake, Oregon, 341 †
Dines, W. H., The Connection between the Winter Temperature and the Height of the Barometer, 233 †
Dingelstedt, V., The Hydrography of the Caucasus, 335 †
Dinklage, L., Treibeis in südlichen Breiten, 586 †
Djaghatu Chai, Lake Urmi region, 507, 519
Doering, O., Resultados Hipsométricos de Algunos Viajes, del Dr. Bodenbender, 584 †; Tomadas en la provincia de Córdoba, 584 †
Dolmens of Japan and their Builders, by W. Gowland, 580 †
Dominguez, Don F. L., remarks on "Explorations in Patagonia," 374
Donga river, Benue, 632
Donyu Elgon, British East Africa, 283; Donyu Ronyu, 283
Dooman, Rev. I., The Origin of the Japanese Race, 679 †
Drakensbergen, Notes on the Geology of the, by F. F. Churchill, 337 †
Drapeyron, L., Colonel Coello, J. V. Barbier, etc. (Biography), 124 †; Comment Michelet est devenu historien et géographe, 235 †
Drift-casks for the Determination of Arctic currents, 326
Drift-ice, observations on, 544
Droogmans, H., map of the Lower Congo, note on, 565, 694
Drummond-Hay, —, Trade of Beirut and Coast of Syria, 582 †
Drygalski, E. v., Die Grönland-Expedition der Gesellschaft für Erdkunde in Berlin, 231 †
Dubois, M., La Tunisie, 228 †
Dubreucq, R., Les populations naines de l'Afrique, 117 †
Dufresne, Dr. E., par E. Chaix, 124 †
Dumba town and people, 632
Dundas, —, Trade of Norway, 455 †
Dune Floras of Lake Michigan, Mr. Cowles on, 668, 683 †
Dunham, R. W., Maize and its Uses, 234 †
Dunstan, B., Report on the Mesozoic Coal Measures of Stanwell, 464 †
Duponchel, A., Nouvelle théorie cosmogonique, 125 †
Durban, W., The Trans-Siberian Railway, 680 †
Duruy, V., Mission dans le Nord-Ouest de Madagascar, 337 †
Dutch, Part borne by the, in the discovery of Australia, by J. E. Heeres, 685 †
Dutreuil de Rhins, J. L., Mission Scientifique dans la Haute Asie, 225 †
Dutreuil de Rhins, M., in Central Asia, letter from M. F. Grenard on, 328
Dybowski, J., Organization d'un voyage d'exploration, 347 †

E.

Eaglehawk and Crow, a Study of the Australian Aborigines, by J. Mathew, 685 †
Earth—
Age of the Earth as an Abode fitted for Life, by Lord Kelvin, 123,† 232,† 465 †
Plan of the, and its Causes, by J. W. Gregory, 465 †
Earthquake Waves—
Source of the Periodic Waves, etc., by H. C. Russell, 232 †
East Creek Amphitheatre, Exploration of the, by C. B. Bradley, 120 †
Easter Island—
Mission à l'île de Pâques, per Cap. Barclay, 342 †
Edmond, J. P., letter from, on "Was Australia discovered in the Sixteenth Century?" 574
Edvi, E. v., Die Lage der Isotherme, 233 †
Edwards, F. A., The Future of the Niger, 460 †
Edwards Plateau, Geology of the, etc., by Hill and Vaughan, 341 †
Edwards's Australasian Catalogue, by Mr. Petherick, 231 †
Egypt—
Despatches from Her Majesty's Agent, etc., by Sir W. Garstin, 336 †
Donati, Vitaliano, Il Viaggio in Oriente di, del P. Revelli, 459 †
Egypt after Omdurman, by J. Lowry Whittle, 336 †
Egypt, No. 3, Report . . . on Finances, etc., 117 †
Emerald Mines of Sikait, Expedition to the, by H. W. Seton Karr, 681 †
Ethnologische Stellung der . . . Aegypter, von R. Virchow, 336 †
Expansion of, under Anglo-Egyptian Condominium, by A. S. White, 681 †
Herodotus and Egyptian Geology, by Rev. F. Walker and Sir J. Dawson, 459 †
Irrigation Department, Report of the Administration of the, 227 †
Land of Goshen and the Exodus, by Major Brown, 117 †

Egypt—*continued*.
Public Works Department, Report upon the Administration of the, by Sir W. E. Garstin, 663, 681 †
Sudan, Sir W. Garstin's report on the, 208
Unter der Beduinen der ägyptischen Wüste, 118 †
Ehrenreich, Dr., Ein Ausflug nach Tusayan (Arizona), 683 †
Ekholm, N., und S. Arrhenius, Ueber . . . Periode der Polarlichter und Gewitter, 687 †
Elba, Island of, Trade of (Foreign Office Rep.), 454 †
Elberling, E., Ændringer i den politiske Geografi, 466 †
Eldoma Ravine, British East Africa, 276
Elgon, Mount, Central Africa, 133
Ella, Lake, Bear island, 58
Ellesmere Land, Dr. Stein's expedition to, 571
Elliot, D. G., Catalogue of Mammals from the Olympic Mountains, Washington, 684 †
Elliot, Prof. G. F. Scott, The Prospect in Chinese Trade, 456 †
Elliott, Sir C., The Recent Famine in India, 458 †
Ellis, W., Magnetic Results at Greenwich and Kew discussed and compared, 345 †
Elwes, H. J., On the Zoology and Botany of the Altai Mountains, 116; † on the Flora and Fauna of the Altai, 204
Enderby Land, Antarctic Regions, 478
Engadine, le Massif de la Bernina, par M. Maquet, 224 †
Engelhardt, A. P., A Russian Province of the North, 112 †
England—
Admiralty surveys on coasts of, 84
Eastern Counties, The, by C. S. Ward, Thorough Guide Series, 332 †
Flower and Fruit-farming in England, by W. E. Bear, 224 †
Popular Education in, Report on, by J. G. Hodgins, 332 †
England and Wales—
English and Irish Channels, Tidal Streams of the (charts), 351
Ordnance Survey Charts, 125, 237, 348, 467, 590, 691
Reduced Ordnance Survey of, by J. Bartholomew, 238, 347, 692
"Three Miles to Inch" Map of, by W. & A. K. Johnston, 468
Tidal Observations and Ordnance Spirit-Levelling, 578 †; note on, 571
Englishman, The Mean, by J. Jacobs, 332 †
Equatorial Province, Notes from the, by A. D. Milne, 582 †
Erratic Blocks of the British Isles, 332 †
Ethnography of Turkestan and Tibet, 91
Ethnological Text-book, by Mr. A. H. Keane, 449
Europe—
Anthropology and Ethnology of, Selected Bibliography of the, by W. Z. Ripley, 576 †
Bewölkung in Europa an Cyklonen- und Antieyklonen-Tagen, von Dr. C. Kassner, 330 †
Fort gången ap Europas allmänna topografiska Karfarbeten, af Ch. Tottie, 452 †
Geographical Picture of Mediæval Europe, by J. B. Nevins, 110 †
Géographie Militaire, etc., par O. Barré, 110 †
History of the European Fauna, by R. F. Scharff, 576 †
Kartenwerke der europäischen Staaten, von V. Haardt v. Hartenthurn, 330 †
Pflanzendecke Mitteleuropas nördlich der Alpen, von Dr. A. Schulz, 452 †
Sub-oceanic Terraces and River Valleys off the Coast of Western Europe, by Prof. Hull, 333 †
Westgrenze des letzten nordeuropäischen Inlandeises, von M. Hildebrandt, 452 †
Everglades, Across the, by H. L. Willoughby, 120 †; note on, 212
Explorations, Reports of, by A. R. Hasse, 690 †

F.

Færoe, Iceland, and Greenland—
Eléments Météorologiques des îles Féroé, de l'Islande, et du Greenland, 586 †
Færoes—
Færøernes Klima, af V. Willaume-Jantzen, 452 †
Glaciated Valleys in the, by J. Lomas, 452 †
Fairbairn, Prof. A. M., Race and Religion in India, 579 †
Fairchild, H. L., Glacial Lakes . . . in Central New York, 120 †
Falcon island, Pacific, 85
Falkland Islands, Annual Report (Col. Reports), 684 †
Fashoda and the Bahr-el-Ghazal, by J. H. Reed, 459 †
Fauvel, A., Tche-nam-po, nouveau port Coréen, 115 †; La Province du Tché-Kiang, 678 †
Fea, L., Dalle Isole del Capo Verde, 117 †
Federated Malay States, reports on, 662
Fenix river, Patagonia, 355
Fennell, C. W., Notes on some Physical Features in Iceland, 675 †
Ferrero, A., Rapport sur les Triangulations présenté . . . à Stuttgart, 686 †
Ferrière, A., Le port franc de Copenhague, 576 †
Fétichisme, Le, par S. Perregaux, 235 †
Fichtelgebirge in seiner Bedeutung für den mittel-europäischen Verkehr, von F. Nüchter, 453 †

Finland—
An English journal devoted to the cause of the Finnish People, by C. H. Perrott, 455 †
Atlas de Finlande, 692
Åtsärinselkä och Välivesi sjöar, af R. Hammarström, 331 †
Djupkarta öfver Lojo sjö, af A. E. Streng, 332 †
Downfall of, 331 †
Dynerna pa Tauvonsaari, af J. E. Rosberg, 332 †
Finland and the Tsar, by R. N. Bain, 112 †; ditto by Prof. E. Westermarck, 112 †
Finlands landryggar, af R. Hult, 331 †
Fysillis-maantieteellisiä tutkimuksia Kalvolan pitäjässä, by V. Borg, 331 †
Granbestånden i Finland, af A. E. Häyrén, 331 †
Nyländska dalar, af R. Hult, 331 †
Om Bötombergen, af R. Hammarström, 331 †
Pflanzenregionen des finnländischen Lappmarken, von R. Hult, 331 †
Russia in Finland, by Dr. J. N. Reuter, 112 †
Zigenarnes utbredning i Finland, af A. Thesleff, 332 †
Fipa Plateau and Rukwa Plain, Mgr. Lechaptois' journeys in the, 666
Fischer, Dr., Ueber seine Reisen im Marokkanischen Atlas, 228 †; journey in Marocco, 209
Fischer, Herr von, explorations in Patagonia, 568
Fisheries—
Congrès International de Pêches Maritimes, etc., par G. Lavieuville et J. Pérard, 587 †
Fiske, A. K., The West Indies, History, etc., 121 †
"Five Crosses" peaks, Bolivia, 19
Flag and Trade, The, by A. W. Flux, 689 †
Flamand, M., La traversée de l'Erg occidental, 226 †
Fletcher, A. C., A Study from the Omaha tribe, 340 †
Florida, Everglades of, Lieut. Willoughby's Journey across the, 120 †, 212
Flower, Sir W., obituary of, 217
Flux, A. W., The Flag and Trade, 689 †
Foa, M., After Big Game in Central Africa, 459 †; L'invasion européenne en Afrique, 226 †; Traversée de l'Afrique Equatoriale du Zambèze au Congo Français, 126
Föhns, Ueber verschiedene Entstehungsarten und Erscheinungsformen des, von R. Billwiller, 345 †
Fondouce, C. de, Contribution à une faune historique du Bas Languedoc, 222 †
Fontana, Lake, Patagonia, 356, 358
Foochow, Trade of (Foreign Office Rep.), 456 †
Foreman, J., The Philippine Islands, A Political . . . History, 115 †
Formosa—
Aborigines of, Ino Kakyo on, 443
Aborigines of Southern Formosa, by R. Torii, 679 †
Die wilden Stämme von, von Ino Kakyo, 334 †
Geography of Formosa on its Administration, by Y. Ishii, 679 †
Geological Exploration of, by Y. Ishii, 580 †, 679 †
Industries of, Present and Future of the, by J. Inouye, 580 †
Forth Valley, Geography of the, by D. B. Morris, 333 †
Fosse de Cap Breton, gully of the, 405
Foster, W., The Embassy of Sir T. Roe to the Court of the Great Mogul, 579 †
Foureau, M., expedition to French Congo, 319, 565; Patron's Medal awarded to, 102
Foureau-Lamy Mission, La marche de la, 228 †, 336, 680 †
Fouta-Djalon, Impressions du, 337 †; Les Ressources économiques du, par J. Machat, 459 †
Fowler, T. W., A Contribution to Australian Oceanography, 463 †; The Determination of Heights by Barometric Methods, 343 †
France—
Carte de, 1750–1898. Étude historique par Col. Berthaut, 222 †
Carte de, Rapport sur le projet de réfection de la, par M. de Lapparent, 343 †
Côtes de, Carte lithologique des, par J. Thoulet, 453 †
Embut de Caussols, par A. Janet, 330 †
Excursions de la Société de Géographie de Lille, par E. Cantineau, 452 †
Frankrijk en zijne landschappen, door J. Kuyper, 222 †
Map of, proposed, 441
Maps: Carte et Atlas Lithologique des Côtes de France, par M. Thoulet, 692
Massif Central, par A. Leroux, 330 †
North-west coast of, Changes in, 204
Observations centralisées par le service Hydrométrique du Bassin de la Seine, par M. Babinet, 452 †
Plus Beau Royaume sous le Ciel, par O. Reclus, 330 †
Ports maritimes français de l'Atlantique, par L. Imbert, 452 †
Projet de jonction géodésique entre la France et l'Italie, par C. de Thury, 222 †
Statistique Générale de la, 110 †
Trade of (Foreign Office Rep.), 452 †
Village Arabes en, par A. Descamps, 676 †
Francis, Rev. A., Notes of a Tour in Russia, 676 †
Franco-Anglaise, La Convention, 337 †
Franco-Brazilian contested Territory, M. Brousseau on, 213

Franconie, J., Le Régime des Chemins de fer dans l'Inde Anglaise, 115 †
Frankfort-on-Main, Trade of, by Sir Ch. Oppenheimer, 453 †
Franzius, L., and G. de Thierry, River Regulation Works . . . in Germany, 110 †
Franz Josef fjord, Greenland, 535
Franz Josef Land—
A Thousand Days in the Arctic, by F. G. Jackson, 122 †
Mammalia and Birds of, by W. S. Bruce and W. E. Clarke, 231 †
Mr. Wellman's expedition to, 326
Frech, Dr. F., Ueber die Gebirgsbildung im paläozoischen Zeitalter, 587 †
Free Church of Scotland, Report on Foreign Missions, 691 †
French—
Early maps of Java, 424
Expeditions in the Western Sudan, 320; on the Ivory Coast, 210
Niger railway, 564
Oceanographical work, 438
Freshfield, D. W., Hannibal's Pass, 221 †
Frick, J., The Vassalage of South America, 121 †
Friederichsen, Dr. M., On the Morphology of the Tian-Shan, 443
Fritsche, Dr., Die Elemente des Erdmagnetismus, etc., 345 †
From London to Karachi in a Week, by F. H. Skrine, 680 †
Früh, J., Der Postglaciale Löss im St. Galler Rheinthal, 578 †
Függer, M., Le "Nixloch" du Wildmoos près Fuschl, 221 †
Fulani race, Benue region, 631
Fülleborn, Dr., Expedition to Lake Nyasa, 94
Fuller, M. L., Sand-plain Formation, 688 †
Fulst, Dr. O., Ueber das sogenannte "Pagelsche Verfahren," 586 †
Funafuti, The Atoll of, its Zoology, etc., by C. Hedley, 342 †
Furber, T. F., Trigonometrical Survey of New South Wales, etc., 463 †
Furneaux Islands, Tasmanian Half-Castes of the, by E. Stephens, 686 †
Furness, Dr. W. H., Life in the Luchu Islands, 225 †
Futa Jallon, Exploration in, by Dr. Maclaud, 664
Futaleufu river, Patagonia, 324
Futterer und Holderer, Drs., Reise durch Central-Asien und China, 114 †
Fyler, Colonel, The Development of Cyprus, 111 †

G.

Gader Chai, Lake Urmi region, 507, 520
Gaedertz, Herr, journey in Shantung, 206
Galimard, J., Les Caveaux de Verpent, 222 †
Galland, De, Excursion à Bou-Saada, 680 †
Gallegos river, South America, 253, 257
Gallois, E., Excursion à la capitale de Tamerlan, 116 †
Game-preserve in British Central Africa, 211
Ganges, estuary of the, submarine gully, 410
Gannett, H., The Redwood Forest of the Pacific Slope, 229 †; on the Science of Map-making, 450
Ganong, W. F., Notes on the Natural History . . . of New Brunswick, 460 †; Upon Raised Peat-Bogs in New Brunswick, 119 †
Gaping Ghyll Cave, Yorkshire, 658
Garda, Lake, depth of, 441
Gardner Islands, Herr Schnee's Visit to the, 570
Garnier, C., Méthode de Transcription Rationnelle générale des noms géographiques, 236 †, 690 †
Garofalo, T. P., Estudios de Historia griega, 588 †
Garonne, Subterranean course of the, 407
Garriott, E. B., The West Indian Hurricane of August, 1899..685 †
Garstin, Sir W., Egypt, Despatches . . . and Report on the Soudan, 336 †; Nile Flood, 227 †; report on the Egyptian Sudan, 208; report upon the Administration of the Public Works Department, 681 †
Garumna and Lettermullen, Ethnography of, by C. R. Browne, 333 †
Gautier, B., La pluie en Suisse et à Genève, 224 †
Gayem country, Benue region, 635
Gaza, 1897–1898, by Cap. G. da Costa, 682
Gebel Sês in der Harra und seine Ruinen, 336 †
Geer, G. de, Om Skandinaviens geografiska utveckling efter istiden, 577 †; Om den Senkvartära Landhojningen kring Bottniska Viken, 677 †
Gelcich, E., Die Schlussrechnung bei der Längenbestimmung aus Norddistanzen, etc., 344 †
General Paz, Lake, 360
Genetic classification of land-forms, 481
Gennadius, P., Report on Agriculture in Cyprus, 455 †
Geodesy—
Comptes-rendus des séances de la Douzième Conférence, par A. Hirsch, 687 †
Principien der Variationsrechnung, etc., von F. Rudio, 232 †
Triangulations présenté à la Douzième Conférence Générale à Stuttgart, par A. Ferrero, 686 †
Geodetic Survey of South Africa, 667
Geographic Board of Canada, 668
Geographical and Geological Exhibition at Springfield, by R. C. Dodge, 467 †
Geographical Association, Festival of the, at the University of Vienna, 659

Geographical Bibliography, International, 545
Geographical Congress, Seventh International, Proceedings of, 537–545; Resolutions of, 543; Plan of Excursions, 86, 453†; Seventh International, 690†; Internationale Geographenkongress zu Berlin, von H. Wagner, 690†; Swiss, 347†
Geographical Cycle, The, by W. M. Davis, 481*
Geographical Discovery, Sixty Years' Progress of, by A. C. Macdonald, 467†
Geographical Distances—
Recherches sur les Distances géographiques, etc., par G. Détrez, 687†
Geographical documents in Switzerland, M. Marcel's discovery of, 216
Geographical Literature of the Month—
Africa, 117, 226, 336, 458, 582, 680
America, 119, 228, 338, 460, 583, 682
Anthropogeography and History, 124, 234, 346, 466, 588, 688
Asia, 113, 224, 333, 456, 579, 678
Australasia and Pacific Islands, 121, 231, 342, 463, 585, 685
Biography, 124, 235, 346, 588, 689
Europe, 109, 221, 329, 452, 576, 675
General, 124, 236, 347, 466, 589, 689
Mathematical Geography, 122, 232, 343, 464, 586, 686
Physical and Biological Geography, 123, 232, 344, 465, 586, 687
Polar Regions, 122, 231, 342, 464, 586, 686
Geographical Names—
Allgemeinen Transskription geographischer Namen, von Dr. Sieger, 690†
Méthode de Transcription Rationnelle générale des noms géographiques, par C. Garnier, 236†, 690†
Notes on the spelling of some, by G. G. Chisholm, 467†
Geographical Terminology, Time as an element in, 483
Geographisches Jahrbuch, von H. Wagner, 237†
Geography—
Ændringer i den politiske Geografi, af E. Elberling, 466†
Album Géographique, par MM. Dubois et Guy, 236†
Alcuni studi di storia della Geografia antica, Nota del Prof. Ricchieri, 235†
Allgemeine Erdkunde als Anhang zur Deutschen Schulgeographie, von Dr. Supan, 690†
At the British Association, Dover, 546
Bibliographie géographique annuelle, 589†
Economic Geography in Education, Position of, by Dr. A. J. Herbertson, 589†
Geography—*continued*.
Enseignement rationnel de la géographie, 589†
Function and Field of, by J. Scott Keltie, 347†
Geografi italiani all' estero, del C. Bertacchi, 237†
Geografia all' Esposizione di Torino, del Prof. B. Frescura, 589†
Geographie als Universitätspach, von Dr. Löffler, 690†
Géographie médicale, La, par H. Gros, 688†
Geographische Unterricht an den deutschen Hochschulen im Sommersemester, 125†
International Geography, by Seventy Authors, edited by H. R. Mill, 691†; Review on, by Major Darwin, 656
Military, Methods of, Prof. Barré on, 671
Of Mammals, by W. L. and P. L. Sclater, 123†
Oxford, School of, 2, 82; programme of, 559
Photocol-Sammel-Atlas, von Dr. Zimmerer, 236†
Physical Geography in Secondary Schools, by Prof. Brigham, 467†
Physical, of Central America, Dr. K. Sapper on, 95
Physical, Prof. Davis on, by H. R. Mill, 183
Progrès de la géographie pendant 1898, par le baron Hulot, 237†
School of, at Oxford, 593
Teaching of Applied Geography, Report on, by Dr. A. J. Herbertson, 589†
Theoretical geography, 483
Gerlache, M. de, expedition to the Antarctic, 7; L'expédition antarctique Belge, 686†
German Colonies—
Deutsche Koloniallitteratur im 1897, von M. Brose, 467†
Jahresbericht der Deutschen Kolonialgesellschaft, 467†
Kolonial-Handels-Adressbuch, 690†
German Deep-Sea Expedition, 10
German progress in the Cameroons, 565
German scientific researches on Lake Nyasa, 94
Germany—
Allgemeine Versammlung der Deutschen geologischen Gesellschaft, 111†
Bestimmung der Intensität der Schwerkraft . . . bis Koburg und Göttingen, von L. Haasemann, 330†
Brown Coal Mining in the Rhineland, 110†
Cession of the Carolines to, 97
Commercial Development of, by C. Rozenraad, 110†
Litauen, eine Landes- und Volkskunde, von Dr. A. Zweck, 222†
Maps: Karte des Deutschen Reiches (Topogr. Bureau), 238, 348, 590

Germany—*continued.*
Meteorologischen Instituts, Veröffentlichungen des Königlich Preussischen, von W. von Bezold, 453 †
Obergermanisch-rätische Limes, von R. Gradmann, 111 †
Pêches maritimes en Allemagne, 453 †
River Regulation Works, etc., by Franzius and Thierry, 110 †
Seeburger See bei Göttingen, von Dr. Halbfass, 110 †
Steinhuder Meer, von Dr. Halbfass, 110 †
Thal- und Seebildung im Gebiet des Baltischen Höhenrückens, von Dr. Keilhack, 222 †
Ghewy, A. B., Real Municipal Government for London, 113 †
Giannitrapani, Colonel, La regione alpina, 111 †
Gibbons, Major, expedition to the Zambezi, 93
Giffen, Sir R., The Excess of Imports, 113 †
Giglioli, Prof., La Moneta tra popoli primitivi ed il "Birok" danaro aristocratico della Nuova Irlanda, 234 †
Gilbert, G. K., Recent Earth-movement in the Great Lakes Region, 339 †
Gilbert, Sir Humphrey, Termination of expedition of, by Rev. G. Patterson, 235 †
Giles (Gilles) Land, or White Island, 67, 170
Gill, —, Report of Her Majesty's Astronomer at the Cape of Good Hope, 681 †
Glaciers—
Bewegungsrichtungen des diluvialen Inlandeises, von Dr. J. Petersen, 123 †
Gletscher-Forschung, Neue Ergebnisse und Probleme der, von Dr. E. Richter, 232 †
Gletscher von Sulitelma und Almajalos, von J. Westman, 676 †
Of South-Eastern Alaska, Notes on, by O. J. Klotz, 523 †
Recent Glacier Investigations, Prof. E. Richter on, 316
Sea-ending, On the Advance and Retreat of, Letter from Sir M. Conway, 672
Tabular, of the antarctic, 556; Glacier ice, grain of, 557
Glasgow, Cyclist's Road Map of, by J. Bartholomew, 468
Globigerina ooze, 433
Gocher, Rev. H., Four Hundred Miles in Sarawak, 679 †
Gold in East Bokhara, 606, 607
Goodchild, J. G., Dr. Heddle and his Geographical Work, 346 †
Goodwin, H. B., The Simplification of Formulæ in Nautical Astronomy, 586 †
Gorst, H. E., China, 334 †
Gosha district, 637
Goshen, The Land of, and the Exodus, by Major Brown, 117 †
Goule-Noire (Isère), Projet d'utilisation de la grotte de, par E. Mellier, 330 †
Gowland, W., The Dolmens of Japan and their Builders, 580 †
Grace, M. S., A Sketch of the New Zealand War, 686 †
Gradmann, Dr., Der obergermanisch-rätische Limes, 111 †; note on, 89
Graffigny, H. de, Explorations of the Upper Atmosphere, 345 †
Graham Land, Antarctic Regions, 476
Gran Chaco, Boat Journey across the, 567; Massacre of Signor Ibarreta's expedition to, 214
Grand River, Michigan, Mouth of, by E. H. Mudge, 584 †
Grandjean, A., L'Invasion des Zoulou dans le Sud-Est Africain, 228 †
Grant of Rothiemurchus, by W. S. Seton-Karr, 689 †
Gravity—
Bestimmung der Gravitationsconstante, etc., von Richarz und Krigar-Menzel, 232 †
Relative Schwerebestimmungen durch Pendelbeobachtungen, 343 †
Gray, R. K., on submarine river escapes, 401
Great Fish Bay—
Von der deutschen Tiefsee-Expedition, 118 †
Greeks—
Estudios de Historia griega, por T. P. Garofalo, 588 †
Greenland—
East: Danish expedition to, 449; Swedish Expedition to, 97
Expeditions in, 97, 325, 448
Förslag till en expedition till östra Grönland, von Prof. Nathorst, 343 †
Grönland-Expedition der Gesellschaft für Erdkunde, von E. v. Drygalski, 231 †; ditto, von E. Richter, 232 †
Swedish East Greenland Expedition, by Dr. Nathorst, 534
Gregor, J., Trigonometrische Hohenbestimmung . . . von Laibach, 221 †
Gregory, Dr. J. W., remarks on "Explorations in Patagonia," 375; The Plan of the Earth and its Causes, 465 †
Grenard, F., Carte de l'Asie Centrale, 238; letter from, on M. Dutreuil de Rhins in Central Asia, 328; on the Ethnography of Turkestan and Tibet, 91; Surveys in Central Asia, 442; Voyage de M. et Mme. Rijnhart dans le Tibet oriental, 114 †
Grenfell, W. T., Climate and Travel in Labrador, 683 †
Grevé, C., Die geographische Verbreitung der jetzt lebenden Perissodactyla, etc., 346 †
Gribaudi, P., L'avvenire economico della Cina, 456 †

Gribble, Fr., The Early Mountaineers, 347 †
Gribingi river, 320
Griesbach, Dr. L., General Report . . . of the Geological Survey of India, 458 †
Groffier, V., Travaux géographiques des missionaires catholiques, 467 †
Gros, H., La géographie médicale, 688 †
Grosvenor, G., Plans for reaching the South Pole, 586 †
Grulich, O., Katalog der Bibliothek, 236 †
Gruner, Dr., on the Harmattan wind, 445
Guadeloupe en 1899, par A. Isaac, 685 †
Guaicurú, del G. Boggiani, 230 †
Guallabamba river, Patagonia, 377
Guash Ngishu tribe, 147
Guaso Masa river, British East Africa, 277
Guayakis of Paraguay, Dr. R. Lehmann Nitche on the, 567
Guayaquil, Trade of (Foreign Office Rep.), 462 †
Guiana—
Dutch: De Boven-Nickerie onderzocht en in Kaart gebracht door C. van Drimmelen, 230 †; Het Fransch-Braziliaansch grensgeschil . . . van Nederlandsch Guiana, door Dr. Benjamins, 230 †
French: La Guyane Française, etc., par G. Brousseau, 230 †
Historique sommaire du conflit anglo-Vénézuélien en Guyane, par G. Parisot, 230 †
Guinea, Upper, The Harmattan in, 445
Gule, Central Africa, 138
Gulf Stream in the Arctic Regions, 176
Gulliver, F. P., Shoreline Topography, 344 †
Günther, Dr. S., Das bayerisch-böhmische Erdbeben, 110 †
Gunther, R. T., Contributions to the Geography of Lake Urmi and its Neighbourhood, 504 *
Guy, C., Le Transvaal, 228 †

H.

Haardt v. Hartenthurn, V., Die militärisch-wichtigsten Kartenwerke der europäischen Staaten, 330 †
Haddon, Dr. A. C., studies in Torres Straits, 302
Hague, A., Early Tertiary Volcanoes of the Absaroka Range, 339 †
Hahl, Dr., Der Bismarck-Archipel und die Salomons-Inseln, 463 †
Haidahs of the Queen Charlotte Islands, Origin of the, by J. Campbell, 119 †
Haïnan, l'île de l'Exil, par C. Jeremiassen, 114 †
Haïti—
Geologische Studien in, von L. G. Tippenhauer, 230 †
Halbfass, Dr. W., Der Arendsee in der Altmark, 577 †; Das Steinhuder Meer, 110 †; Der Seeburger See bei Göttingen, 110 †
Hall, Prof. C., Distribution of the Keewatin in Minnesota, 684 †
Halle, Beschreibung der Stadt, von G. Lorenz, 577 †
Hamberg, H. E., La pression atmosphérique en Suède, 677 †
Hamburg, Trade of (Foreign Office Rep.), 453 †
Hammarström, R., Om Bötombergen, 331 †; Ätsärinselkä och Välivesi sjöar, 331 †
Hammer, E., Vergleichung einiger Abbildungen eines kleinen Stücks der ellipsoidischen Erdoberfläche, 344 †
Hampshire, Handbook of, by John Murray, 113 †
Hamy, Dr., on early maps of Java, 423
Hankow, Trade of (Foreign Office Rep.), 679 †
Hannibal's Pass, by D. W. Freshfield, 221 †
Hanno, Der Periplus des, von Dr. K. E. Illing, 466 †
Hanse Towns, Development of the, by E. C. Semple, 454 †
Haparanda, etc., Bestimmung der Intensität der Schwerkraft auf den Stationen, von P. G. Rosén, 578 †
Harker, A., Glaciated Valleys in the Cuillins, Skye, 224 †
Harmattan in Upper Guinea, Drs. Gruner, Mischlich, and von Danckelman on, 445
Harra, Gebel Sēs in der, und seine Ruinen, 336 †
Harrisse, H., The Cabots, Notes on certain Papers contributed to the Transactions of this Society, 466 †
Hartgebirge, Glaciale Erscheinungen vom, von Dr. Mehlis, 223 †
Harvie-Brown, J. A., On a Correct Colour Code, etc., 125 †
Hasse, A. R., Reports of Explorations, 690 †
Hassert, Dr. K., Die geographische Lage und Entwickelung Leipzigs, 453 †
Hauer, Franz von, Zur Erinnerung an, von Dr. A. Böhm, 235 †
Haupt, H., The Problem of the Mississippi, 120 †
Hausa tribe, 636
Hauser, H., Études sur les Colonies Allemandes, Togo, 460 †
Hauttecœur, H., L'île d'Amorgos, 453 †
Havass, Dr., Dalmatien, 110 †
Havelock, W., The Trans-Baikal, 582 †
Hawaii—
Hawaiian Islands, The, by W. Maxwell, 342 †
Hayden, Ensign E., Clock-Rates and Barometric Pressure . . . at Mare Island Observatory, 464 †
Hayden, H. H., On the Geology of Tirah and the Bazar Valley, 579 †
Hayek, Dr. G. v., Die afrikanische Transcontinentalbahn, 226 †

Hayes, C. W., Physiography of the Nicaragua Canal Route, 463 †
Häyrén, A. E., Grandbeståndeu i Finland, 331 †
Hazen, A., The Clarification of River Waters, 123 †
Hazrat Tshan, Bokhara, 608, 609 *note*, 613
Health Exhibition for Travellers, 672
Heawood, E., Was Australia discovered in the Sixteenth Century? 421 *
Hebrew and Greek Inscription relating to the Boundary of Gezer, by Prof. Clermont-Ganneau, 226 †
Hector, Sir J., Presidential Address to Australasian Association for the Advancement of Science, 466 †
Heddle, Dr., and his Geographical Work, by J. G. Goodchild, 346 †
Hedin, Dr. Sven, work in Central Asia, 90; Durch Asiens Wüsten, 225 †
Hedley, C., The Atoll of Funafuti, its Zoology, etc., 342 †
Heeres, J. E., The Part borne by the Dutch in the Discovery of Australia, 585 †, 685 †
Heiderich, Dr., Schattenplastik und Farbenplastik, 122 †
Heiderich, F., Die Weizenproduction der Erde, 688 †
Heilprin, A., Alaska and the Klondike, 583 †
Hemsley, W. B., note on the botany of Sir Martin Conway's expedition, 32
Henry, A. J., Wave or Billow Clouds, 465 †
Hepworth, W. C., The Value of Meteorological Observations at Sea, 233 †
Héraud, G., Léopold Manen, ingenieur hydrographe, 346 †
Herbertson, A. J., Monthly Rainfall over the Land Surface of the Globe, 688 †
Herbertson, A. J. and F. D., Man and his Work, 588 †
Herbertson, Dr. A. J., Commercial Geography of the British Isles, 677 †; Position of Economic Geography in Education, 589 †; Report on the teaching of Applied Geography, 589 †
Hereford Earthquake of 1896, etc., by E. Greenly, 578 †
Héréns, C., La Caverne de Ratelstein en Styrie, 221 †
Hergesell, H., Ergebnisse der internationalen Ballonfahrten, 124 †
Hermann, J., Ort und Ursache der Strandungen deutscher Seeschiffe, 347 †
Hermite, G., Sur un voyage aérien de longue durée, 689 †
Herodotus, How far his remarks bearing on Egyptian Geology are reliable in the Light of Recent Egyptian Research, by Rev. F. Walker and Sir J. Dawson, 459 †
Herrmann, Captain, surveys in Bukoba, 321
Hessel, F. J., Sur le commerce du "caucho" dans l'Amérique du sud, 685 †
Hesse-Wartegg, E. von, Schantung und Deutsch-China, 679 †
Hewitt, J. F., The Pre-Aryan Commercial Village in India and Europe, 225 †
Higgins, E. E., Some of the Larger Transportation Problems in Cities, 237 †
Highway of the Nations, The, by Colonel Mark Bell, 678 †
Hill, Hon. D., Original Territory of the United States, 120 †
Hill, W. B., Antient Southampton, Catalogue of Works of Art belonging to, 677 †
Hill-Tout, Prof., Notes on the . . . Squamish Indians of British Columbia, 119 †
Hirsch, A., Comptes-rendus des Séances de la Douzième Conférence de l'Association Géodésique, 686 †
Historical Atlas of Modern Europe, by R. L. Poole, 126, 468
Hobbs, W. H., The Diamond Field of the Great Lakes, 461 †
Holdich, Colonel Sir T. H., remarks on "Journeys to the North of Uganda," 153; remarks on "Travels in Bokhara," 618
Holland—
Au pays de Rembrandt et de Frans Hals, par V. de Swarte, 454 †
Franken in Drenthe, door Dr. J. te Winkel, 675 †
Het Brongas in Nederland, door J. Lorié, 223 †
Komen er "Franken" voor in Drente of "Kelten," door Dr. J. Sasse, 675 †
Noordnederlandsche tongvallen, door Dr. te Winkel, 223 †
Reading List on the Netherlands, by E. G. Thorne, 331 †
Hollway, H. S., Bibliography of Books, etc., relating to South Africa, 338 †
Holmes, F. H., Where does the Day begin? 464 †
Holmquist, P. J., Om Rödöområdets, 677 †
Homolka, J. (Biography of), Emerich v. Péchy, 235 †
Hooker, Sir Joseph, remarks on the National Antarctic Expedition, 195
Hope Island, Spitsbergen, 59, 60
Hopkins, —, Trade of Chefoo, 456 †
Horák, B., Botanische Reise nach Montenegro, 112 †
Horizon—
Variations de l'horizon apparent, de M. Forel, 687 †
Hosie, —, Trade of Wuchow, 457
Hostains and d'Ollone, MM., explorations of the upper Kavalli, 320
Hotz, A., on Persian Trade Routes, 91
Howard, —, Trade of Pernambuco and District, 462 †
Howarth, O. W., on Western Oaxaca, 669
Howell, F. W., Iceland, the Wonderland of Europe, 111 †; journey across the Láng Jökull, 441
Howell, H. H. (Biography), 588 †

Hübl, A. von, Beiträge zur Technik der Kartenerzeugung, 232 †; Das photogrammetrische Höhenmessen, 344 †
Hudleston, W. H., On the Eastern Margin of the North Atlantic Basin, 327
Hudson Bay, Rising of the Land around, by R. Bell, 229 †
Hull, Prof. E., On the Sub-Oceanic Physical Features off the Coast of Western Europe, 333 †, 465 †; Physical Conditions of the Mediterranean Basin, 455 †; Where is Mount Sinai? 458 †
Hulot, Baron, Rapport sur les progrès de la géographie pendant 1898 .. 237 †
Hult, R., Finlands landryggar, 331 †; Die Pflanzenregionen des finnländischen Lappmarken, 331 †; Nyländska dalar, 331 †
Humboldt's Reise nach Amerika, 689 †
Hunan, Recent Journey from Shanghai to Bhamo through, by Captain Wingate, 639 *
Hungary—
Bevölkerungsverhältnisse der ungarischen Städte, von Dr. Thirring, 223 †
Cavernes de Hongroie, Notes sur les, par Ch. Siegmeth, 223 †
Klamm im Grossen Sokol, von M. Karoliny, 675 †
Photographs of, by Geographical Institute of the Royal Hungarian University, 470
Huni, A., Les Flottes de commerce et le trafic maritime, 234 †
Hun Kiang Gorges, Through the, by R. T. Turley, 292 *
Hunter, W., London's Water Supply, 113 †
Hurley, Mrs., The Gold-diggings at Bathurst, 342 †
Hutchinson, L., A Neglected Region of the Sierra, 120 †
Hydrometer, An Improved Form of, by Rev. H. O'Toole, 233 †
Hygrometry—
De la manière d'utiliser les observations hygrométriques, par A. Lancaster, 465 †
Hypsometer als Luftdruckmesser, von H. Mohn, 464 †

I.

Ibarreta, Signor, massacre of expedition under, in the Gran Chaco, 214
Ibn Batuta's Travels, Translation of, into Urdu, 672
Ibrahim, Lake, Central Africa, 132
Ice—
Admiral Makaroff on ice-breaking steamer, 546
Effect of Ice-melting on Oceanic Circulation, 587 †
Grain of ice of glaciers, 557
Observations on drift-ice, 544
Iceland—
Explorations in, by Dr. Thoroddsen, 331 †
Iceland—*continued.*
Højlandet ved Langjökull paa Island Rejseberetning, af Dr. Thoroddsen, 454 †
Howell, Mr. F. W., journeys in, 441
Notes on some Physical Features in, by C. W. Fennell, 675 †
Saga-steads of, A Pilgrimage to the, by W. Collingwood and Stefansson, 675 †
The Wonderland of Europe, by F. W. Howell, 111 †
Trade of (Foreign Office Rep.), 454 †
Ichang, Trade of (Foreign Office Rep.), 457 †
Idaho Basin, Mining Districts of the, by W. Lindgren, 340 †
Illecillewaetgletscher im Selkirkgebirge, von A. Penck, 119 †
Illimani, ruined village on, 23
Illing, Dr. K. E., Der Periplus des Hanno, 466 †
Illinois, State of, Coal-mining in the (Foreign Office Mis.), 683 †
Imbert, L., Quelques ports maritimes français de l'Atlantique, 452 †
I-men and Ching-tung, country between, 641
Immanuel, Hauptmann, Die Gebirge Nordsibiriens, 335 †
Imports, The Excess of, by Sir R. Giffen, 113 †
Impressions of America, by T. C. Porter, 461 †
Inambari river, South America, 214
India(n)—
Admiralty Surveys on coasts of, 86
Agrarian Conditions under British and Native Rule, by M. F. O'Dwyer, 334 †
Archæological Tour with the Buner Field Force, Report of an, by A. Stein, 458 †
Chemins de fer dans l'Inde Anglaise, par J. Franconie, 115 †
Embassy of Sir T. Roe to the Court of the Great Mogul, edited by W. Foster, 579 †
Famine in India, The Recent, by Sir C. Elliott, 458 †
From London to Karachi in a Week, by F. H. Skrine, 680 †
Geological Survey, General Report, by C. L. Griesbach, 458 †
Maps: Government surveys, 693
Memoria historico-economica . . . da India portugueza, por F. X. E. Fernandes, 335 †
Nederlandsche factorijen in Hindostan, door P. H. Van der Kemp, 225 †
North-West Provinces and Oudh, Report on the Administration of the, 225 †
Ocean, Temperatures of the, 38, 40, 44
Pre-Aryan Commercial Village in Europe and, by J. E. Hewitt, 225 †
Race and Religion in, by A. M. Fairbairn, 579 †

India(n)—*continued.*
Survey of India Department, General Report on the Operations of the, by Major-General Strahan, 335 †
Surveys, Report on the, for 1897-98.. 313
Indiana and Ohio, Water Resources of, by F. Leverett, 340 †
Ingolf Expedition, The Danish, 587 †
Innthal bei Kufstein und die Eiszeit, von J. Jaeger, 221 †
Insulinde, Voyage de MM. Hiller, Hamson et Furness, 115 †
International Geographical Congress: *see* Geographical Congress
International Geography, edited by H. R. Mill, 691 †
Ionian Islands, Trade of (Foreign Office Rep.), 453 †
Ireland—
Round Towers of, A List of the, by T. J. Westropp, 333 †
Iron Gate defile, Bokhara, 599
Irrigation, Scientific Study of, by Dr. True, 589 †
Isaac, A., La Guadeloupe en 1899.. 685 †
Isak Island, Lake Urmi, 515
Iseo, Lake, depth of, 441
Ispahan and District, Trade of (Foreign Office Rep.), 581 †
Ispir Island, Lake Urmi, 515
Italian Expedition to the Amazon Valley, 213
Italian Geographers—
Geografi italiani all' estero, del C. Bertarchi, 237 †
Italy—
Alessandro Volta ed i suoi studi sulle fontane ardenti di Pietramala edi Velleja, del M. Baratta, 454 †
Émigration italienne et la Colonisation, par A. Ebray, 454 †
Emilia e Romagna, del E. Rosetti, 111 †
Ghiacciai in Italia nel 1898, Lo studio del movimento dei, di G. Marinelli, 223 †; Ghiacciai italiani del Bernina, del L. Marson, 223 †
Gli studi limnologici italiani, del C. Battisti, 111 †
Laghi italiani, Sullo stato attuale degli studi batometrici dei, del G. De Agostini, 454 †; note on, 441
Maps: Carta d'Italia (Istituto Geo. Militare), 348
Meteorologiche mensili . . . in Italia, di G. Saija, 223 †
Misure magnetiche eseguite in Italia, di L. Palazzo, 454 †
Pêcheries de la Vénétie, par J. Nourse, 675 †
Ivory Coast—
Côte d'Ivoire, par F. J. Clozel, 459 †
French explorations on the, 210
I-Wu and I-Bang, Shan States, 380

J.

Ja river, Congo basin, 443
Jack, R. L., Geological Map of Queensland, 469
Jackson, F. G., A Thousand Days in the Arctic, 122 †
Jacobs, J., The Mean Englishman, 332 †
Jäderin'sche Basis, Der, von S. Truck, 232 †
Jaeger, J., Das Innthal bei Kufstein und die Eiszeit, 221 †
Jajec, die alte Königastadt Bosniens, von Dr. M. Bräss, 329 †
Jamaica, Public Finance and Resources of, 341 †
James, B. B., The Labadist Colony in Maryland, 584 †
Jan Mayen island, 535
Japan—
Climatological Division of, by G. Kakagawa, 679 †
Commercial Development of, by O. P. Austin, 580 †
Dolmens of Japan and their Builders, by W. Gowland, 580 †
Foreign Trade of (Foreign Office Rep.), 580 †
Geologic Structure of, by T. Ogawa, 580 †
Government survey map of Korea, 468
Harbours of, by T. Nasa, 115 †
Japan historique et artistique, par M. Ribaud, 115 †
Maps: Map of Japan for Tourists (Welcome Society of Japan), 238
Origin of the Japanese Race, by Rev. T. Dooman, 679 †
Otsuji Coal-Fields in Onga, by T. Suzuki, 580 †
Reading List on, by H. K. Gay, 335 †
Sprichwörter und bildlichen Ausdrücke der Japanischen Sprache, von P. Ehmann, 335 †
Japan and Korea—
Promenades japonaises et coréennes, par D. Lièvre, 225 †
Jardine, Sir J., British North Borneo, 115 †
Jared Sparks and Alexis de Tocqueville, by H. B. Adams, 340 †
Java—
Anniversary Address, Java, by Hon. W. Allan, 115 †; in early cartography, 422, 424
Meteorologische Beobachtungen zu Tosari, von J. Kohlbrugge, 225 †
Over Boro-Boedoer, door J. W. Ijzerman, 679 †
Trade of (Foreign Office Rep.), 580 †
Jeans, Rev. G., Handbook for travellers in the Isle of Wight, 113 †
Jebjeb town, Niger Protectorate, 180
Jefferson, Mark, Beach Cusps, 232 †
Jengger-gebied, Nota betreffende het, door H. M. la Chapelle, 580 †

Jenner, A. C., expedition from Kismayu to Logh, 637
Jennings, A. V., On the Courses of the Landwasser and the Landquart, 578 †
Jenolan Caves and the Blue Mountains, 686 †
Jerrmann, L., Reise durch das Flussgebiet des Rio Ipané, 230 †
Jersey, Climate of, by Rev. H. W. Yorke, 674 †
Jerusalem and Jaffa, Trade of (Foreign Office Rep.), 116 †
Jessett, M. G., The Key to South Africa: Delagoa Bay, 682 †
Jesup North Pacific Expedition, 96; Field Work of the, 347 †
Jewish Colonization Association, 688 †
Jewitt Daghi, Lake Urmi, 515
Jews—
  Anthropologie der Juden, Ripley über die, 588 †
Jibuti—
  Voyage à Djibouti, par M. Charmetant, 227 †
Jogan, R., Madagascar en 1898..118 †
Johansen, Lieut., Nansen und ich auf 86° 14'..231 †
Johns Hopkins Glacier, Alaska, 527
Johnsen, Captain, map of King Charles Land, 70, 71
Johnston, W. & A. K., Map of the Transvaal, 469; "Three Miles to Inch" Map of England, 468
Johnston, W. S., Photographs of Sierra Leone and the Gold Coast, 240
Joly, J., On the Geological Investigation of Submarine Rocks, 233 †
Jones, Prof. R., Notes on the Geology of West Swaziland, 118 †
Jordan, D. S., and B. W. Evermann, The Fishes of North and Middle America, 119 †
Jordan, J. N., Report on trade and commerce of Korea, 561
Juba, Mr. Jenner's expedition from Kismayu to Logh on the, 637
Juggarow Observatory, Report . . . of the, 579 †
Jullien, R. P., Chez les Papous, 685 †
Junin de los Andes, 366
Jura, Quelques explorations spéléologiques dans le, par E. Fournier, 330 †

K.

Kaalaas, B., Beiträge zur Lebermoosflora Norwegens, 112 †
Kagera river, East Africa, 321
Kahyo, Ino, on the Aborigines of Formosa, 443
Kaiser Nicholas II. range, 664
Kalahari desert, 310
Kamchatka—
  Glimpses of Life in the Far North-East, [illegible] by G. E. H. Barrett-Hamilton, 335 †
  Kamchatka, by G. Barrett-Hamilton, 226 †
Kamerun—
  Astronomische Ortsbestimmungen in Kamerun, von Hauptmann v. Besser, 460 †
  Besitzergreifung des Hinterlandes von, von Dr. S. Passarge, 337 †
  Excursion au, par F. Chapuis, 227 †
  Geographischen Verhältnisse des Bezirkes Lolodorf, von Freiherrn v. Stein, 681 †; note on, 664
  Geologen Dr. Esch über eine Reise in das Nkossiland, 682 †
  German progress in the, 565
  Karte des nördlichen Bulugebietes, Begleitworte zu der, von M. Moisel, 227 †
  Regenmessungen in Debundja, 460 †
Kamptz, Hauptmann von, expedition to South Adamawa, 565
Karakoram—
  Biafo Glacier and Hispar Pass in the, Ascent of, by F. B. Workman, 579 †
Karamojo tribe, Central Africa, 136; Plains of, 309
Karatagh, Bokhara, 600
Karoliny, M., Die Klamm im Grossen Sokol, 675 †
Karr, H. W. Seton, Expedition to the Emerald Mines of Sikait, 681 †
Karshi, Bokhara, 598
Kasai basin, Lakes of the, Mr. Verner on, 211
Kasamba marsh, Bangweulu region, 562
Kassner, Dr. C., Ueber die Bewölkung in Europa an Cyklonen- und Anticyklonen-Tagen, 330 †
Katsena river, Benue, 632, 634
Kavalli river, 210; MM. Hostains and d'Ollone's explorations of, 320
Kavirondo, British East Africa, 278
Keane, A. H., Man, Past and Present, 124 †; note on, 449
Kearton, R., With Nature and a Camera, 224 †
Keene, Major, The Third Burmese War, 115 †
Keewatin in Minnesota, Distribution of the, by Prof. Hall, 684 †
Keilhack, Dr., Thal und Seebildung im Gebiet des Baltischen Höhenrückens, 222 †
Keltie, Dr. J. Scott, The Function and Field of Geography, 347 †
Kelvin, Lord, The Age of the Earth as an Abode fitted for Life, 123 †, 232 †, 465 †, Ditto, by Prof. Chamberlin, 465 †; remarks on the National Antarctic Expedition, 196
Kent, Agriculture of, by Ch. Whitehead, 677 †
Kenya, position and height, 283 *and note*; Mr. Mackinder's expedition to, 93, 564
Kerry, Ruins of Ancient Settlement in, Mr. S. Macalister's survey of, 658
Kershaw, L. J., Report on the Trade between Assam and the adjoining Foreign Countries, 458 †

Khartoum-Omdurman et la chute du Mahdisme, par Dr. Abbate Pasha, 459 †
Khedivial Geographical Society—
Musée de Géographie et d'Ethnographie, par Bonola Bey, 236 †
Khedivic Possessions in the Basin of the Upper Ubangi, by S. Capenny, 336 †
Khokand and China, by E. H. Parker, 581 †
Khotan river, letter from Mr. H. P. Deasy on, 451
Kibwezi, road-making at, 271
Kiepert, H., Selbstbiographie von, 235 †
Kikuyu, British East Africa, 273
Kilimanjaro—
Astronomische Ortsbestimmungen . . . im Kilimandjaro-Gebiet, von Dr. Maurer, 460 †
Barometrische Höhenmessungen am Kilimandjaro, von Dr. H. Meyer, 681 †
Gletscher des, von Dr. Meyer, 118 †
Kilimandscharo-Bevölkerung, von Dr. Widenmann, 681 †
Kinabulu, Mount, Mr. Burls' ascent of, 207
King Charles Land, 52–69, 172; Geography of, 161 *et seq.*; plants of, 166; conditions of ice at, 169; Verzeichnis der Phanerogamen in König Karls Land, von Andersson und Hesselman, 343 †
King, Hon. P. G., Antarctic and Southern Exploration, 343 †
King Oscar's fjord, Greenland, 535
Kirchhoff, Dr. A., Umrisse zu einer Landeskunde der Karolinen, 585 †
Kirjawa, fossils at, 518
Kismayu to Logh, Mr. Jenner's expedition from, 637
Kiukiang, Trade of (Foreign Office Rep.), 457 †
Kivu, Lake, and Albert Nyanza, Mr. A. Sharpe's explorations at, 662
Kizil Kugur, Lake Urmi, 515
Klein, Dr. Jahrbuch der Astronomie und Geophysik, 234 †
Klondike—
Au Klondyke, par E. de Lamare, 120 †
Au Klondike vers le pays de l'Or, par J. Servigny, 683 †
Aux Mines d'Or du Klondyke, par L. Boillet, 339 †
Expedition till Klondike, af O. Nordenskjöld, 120
Klondike, by Miss Flora Shaw, 120 †
Klondyke, l'Alaska, le Yukon, etc., par M. L. de Lobel, 229 †
Pioneering in, by A. Macdonald, 229 †
Klotz, O. J., Notes on Glaciers of South Eastern Alaska, 523 *
Knipping, E., Ueber den Genauigkeitsgrad der Bahnbestimmung barometrischer minima, 233 †
Knox, A., A Guide to Recent Large-scale maps, 237 †; Geographical Index to Books, etc., 467 †
Kochait mountain, Patagonia, 263
Kolb, Dr. Georg, Death of, 672
Kondeland, Weitere Resultate der meteorologischen Beobachtungen im, 459 †
Köppen, Dr., Ist die Veröffentlichung von (meteorologischen) Einzelbeobachtungen vom Ozean anzustreben? 344 †
Korea—
Maps: Japanese map of Korea and parts of China, 468
Tche-nam-po, nouveau port Coréen, par A. Fauvel, 115 †
Trade of (Foreign Office Rep.), 580 †; Trade and Commerce of, Report by Mr. Jordan, 561
Korean settlers in Manchuria, 296
Korshinsky, S., Tentamen Floræ Rossiæ, orientalis, 112 †
Koyun Daghi island, Lake Urmi, 513, 514
Krafft, Dr. A. von, Mittheilungen über das ost-bokharische Goldgebiet, 116 †
Krämer, Dr. A., Die samoanische Königsfrage im Hinblick, 122 †
Kretschmer, K., Nordenskiöld's Periplus, 235 †
Krüger, Dr. Paul, Explorations in Patagonia, 324
Kruijt, A. C., De adoptie in verband met het matriarchaat bij de Toradja's van Midden-Celebes, 580 †
Kükenthal, Prof., map of King Charles Land, 73
Kutch-Manor, Bokhara, 605
Kuyper, J., Frankrijk en zijne landschappen, 222 †
Kwebe hills, South Africa, 312
Kwei-chau, 641
Kythera, Die Insel, von Dr. Leonhard, 223 †

L.

Labrador—
Climate and Travel in, by W. T. Grenfell, 683 †
Rapport sur un projet d'expédition au, par E. Richet, 119 †
Lachine Rapids, Temperature of the, by H. T. Barnes, 229 †, 345 †
Lahache, M., L'eau dans le Sahara, 226 †
Lahovari, G. J., Marele Dicţionar Geografic al Rominiei, 676 †
Laibach, Trigonometrische Hohenbestimmung . . . , von J. Gregor, 221 †
Lakes—
Seestudien, Lago ni Serraia, etc., von J. Damian, 221 †
Temperature of, and their classification, by A. Tanaka, 586 †
Lamare, E. de, Au Klondike, 120 †
Lamb, —, Trade of Suakin, 459 †
Lancaster, A., Court Aperçu du climat du Congo, 459 †; De la manière d'utiliser les Observations hygrométriques, 465 †; De l'intérêt des relevés journaliers des heures de Soleil, 452 †

Landberg, Comte de, Arabien, 333†; Die Expedition nach Süd-Arabien, 224†; Die Südarabische Expedition, 678†
Land-forms, The genetic classification of, 481; Land-waste, Forms assumed by, 502
Land-hemisphere, The Pole of the, Prof. Penck on, 98
Landoberfläche, Die Pole der, von A. Penck, 233†
Landwasser and the Landquart, On the Courses of the, by A. V. Jennings, 578†
Langhans, P., Deutsche und Dänen in Nordschleswig, 223†
Láng Jökull, Mr. Howell's journey across, 441
Languedoc, Bas, Faune historique du, par C. de Fondouce, 222†
Lanin volcano, Patagonia, 366, 367
Lankester, Prof. Ray, remarks on the National Antarctic Expedition, 197
Laos—
Haut Laos, sa situation économique, par Dr. Lefèvre, 580†
La Paz river, Bolivia, 16
La Pérouse's expedition, Relics of, 215
La Plata, Lake, Patagonia, 356, 358
Lapparent, M. de, Rapport sur le projet de réfection de la Carte de France, 343†
Las Heras river, Patagonia, 219, 261, 263
Last Hope inlet, South America, 255
Latitude—
Bericht über den Stand der Erforschung der Breitenvariation, von J. Albrecht, 344†
Resultate aus den Polhöhenbestimmungen in Berlin, von Dr. Battermann, 344†
Latuka tribe, 142, 143
Lauterbach, Dr., expedition to German New Guinea, 97
Lavieuville, G., et J. Pérard, Congrès International de Pêches Maritimes, etc., 587†
Lecce, Trade of the Province of (Foreign Office Rep.), 454†
Lechaptois, Mgr., journeys in the Fipa Plateau and Kukwa Plain, 666
Leclercq, J., Note sur le plus ancien entrepôt de commerce, 678†
Lecomte, H., Influence des jardins d'essai, 234†
Lee, Sidney, Dictionary of National Biography, 124†
Lees, J. A., Peaks and Pines, 676†
Lefèvre, Dr., Le Haut Laos, sa situation économique, 580†
Leghorn, Trade of (Foreign Office Ann.), 454†
Leiberg, J. B., Is Climatic Aridity impending on the Pacific Slope? 229†; note on, 212
Leichhardt Expedition, The lost, 545
Leigh, J. G., The Samoan Crisis and its Causes, 122†
Leipzig—
Geographische Lage und Entwickelung Leipzigs, von Dr. K. Hassert, 453†
Leitner, Dr. G. W. (Biography), 346†
Le Messurier, Colonel, remarks on "Travels in Bokhara," 619
Leonhard, Dr., Die Insel Kythera, 223†; Originalkarte der Insel Kythera, 126
Leroux, A., Le Massif Central, 330†
Le Roy, M., Les Pygmées - Négrilles d'Afrique, 227†
Leroy-Beaulieu, P., Le Transsaharien, 228†
Lessar, M., remarks on "Travels in Bokhara," 618
Leverett, F., Pleistocene Features and Deposits of the Chicago Area, 584†; The Water Resources of Indiana and Ohio, 340†
Libau, Kaiser Alexander III. Harbour at, 676†
Licitra, A., Studio su la Vita e su le Opere di G. B. Odierna, 589†
Liddell, —, Trade of Roumania, 455†
Lièvre, D., Promenades japonaises et coréennes, 225†
Lightning—
And Electricity of the Air, by A. McAdie and A. J. Henry, 344†
Zunahme der Blitzgefahr, von W. von Bezold, 233†
Limari submarine river escape, 402
Limes, Roman, in South Germany, Dr. R. Gradmann on, 89
Linggatempel en andere oudheden op het Yanggebergte, door J. Kohlbrugge, 580†
Lippmann, G., Sur la mesure absolue du temps, 344†
Little, A., Two Cities: London and Peking, 346†
Little, Mrs. A., China, 579†; Intimate China, 334†
Littlehales, G. W., The Navy as a Motor in Geographical and Commercial Progress, 237†
Lituya bay, Alaska, 524
Livingstone Exhibition for the Promotion of Health of Travellers, 672
Livingstone's tree, Mr. Codrington's expedition to, 317, 444
Ljubeten in der Sara Planina, von C. R. v. Steeb, 332†
Llopis, D. A., Estudios sobre el Canal de Nicaragua, 463†
Lobb, R. P., The Coming Struggle for Persia, 680†
Lóczy, Dr., Photographs of Transylvania, 592
Loegop or Masai tribe, 146
Loess—
Postglaciale Löss im St. Galler Rheinthal, von J. Früh, 578†
Löffler, Dr., Die Geographie als Universitätsfach, 690†
Lohmann, Dr., Untersuchungen über den Auftrieb der Strasse von Medina, etc., 345†

Lohombo river, Central Africa, 318
Lokulu and Lolingela rivers, Central Africa, 444
Lokunje river, Cameroons, 665
Lolodorf, Cameroons, 664
Lolos tribe, Shan States, 384
London—
London and Peking, by A. Little, 346 †
London's Water Supply, by W. Hunter, 113 †
Real Municipal Government for, by A. B. Ghewy, 113 †
Temperature, Extremes of, in London and Neighbourhood, by Mr. Symons, 113 †
Longitude—
Schlussrechnung bei der Längenbestimmung aus Monddistanzen, etc., von E. Gelcich, 344 †
Lorié, J., Het Brongas in Nederland, 223 †
Loth, W. L., Kaart van Suriname, 590
Lourenço Marques and District, Trade of (Foreign Office Rep.), 583 †
Loysch, Ed., Die Orometrie der Hohen Tátra, 576 †
Luapula river, Mumbotuta falls on, 562
Lucas, W. A., Photographs of New Guinea, etc., 696
Luchu Islands, Photographs of, by W. J. Clutterbuck, 592; Life in the, by Dr. W. H. Furness, 225 †
Lüdeling, Dr. G., Ueber . . . der erdmagnetischen Störungen an Polarstationen, 346 †
Lugano, Lake, depth of, 441
Lugar, Captain, on cable fractures, 398, 400
Lugeon, M., L'origine du Chablais, 222 †
Lunéville, Repartition de la population dans l'arrondissement de, par M. Andriot, 222 †
Lushai hills, surveys in the, 314
Lyell, Sir Charles, on submarine river outlets, 412
Lyons Commercial Mission in China, Review on Report on, 652

M.

McAdie, A., and A. J. Henry, Lightning and Electricity of the Air, 344 †
Macalister, R. A. S., On an Ancient Settlement in the South-West of the Barony of Corkaguiney, 333 †
Macalister, S., Survey of ruins of settlement in Kerry, 658
McClymont, J. R., The Discovery of New Guinea by Antonio D'Abreu, 463 †
Macdonald, A., Pioneering in Klondike, 229 †
Macdonald, Colonel, Expedition of, Notes on the Survey of, 202; Journeys to the North of Uganda, 129*; Report on Expedition from Uganda, 680 †
McGee, W. J., National Growth and National Character, 466 †
Macgregor, Sir W., British New Guinea, Discussion and Annual Report, 231 †
Mach, R. von, Karte der Schulsphären der türkischen Balkan-Halbinsel, 126
Machat, J., Les Ressources économiques du Fouta-Djallon, 459 †
Mache country, 634
Mackinder, H. J., expedition to Mount Kenya, 93, 564; report on Geography at Oxford, 87
Maclaud, La Mission, A travers la Guinée et la Fouta-Diallon, 582 †, 664
Madagascar—
Correspondence with the French Government respecting Madagascar, 118 †
Cultures au Brésil et l'avenir de Madagascar, par M. Conty, 228 †
Hovas et le peuplement de Madagascar, par M. Zaborowski, 337 †
Madagascar, by Lady Colvile, 228 †
Madagascar en 1898, par R. Jogan, 118 †
Majunga, La Région de, 337 †
Malgaches, L'origine des, par E. Courtet, 228 †
Mission dans le Nord-Ouest de Madagascar, par V. Duruy, 337 †
Observations astronomiques . . . sur la côte occidentale de, par R. P. Colin, 118 †
Population du Haut-Bouéni, 228 †
Rapport d'ensemble du général Gallieni sur Madagascar, 682 †
Tamatave à Tananarive, La route de, par A. Durand, 228 †
Travaux géographiques et cartographiques exécutés à Madagascar, par a Grandidier, 682 †
Madras—
Government Museum. Anthropology, by E. Thurston, 579 †
Presidency, Report on the Administration of the, 225 †
Madre-de-Dios, Colonel Pando's and M. Villerobe's explorations on the, 214; The First Discovery of the, 447
Madrolle, C., A propos du chemin de fer français au Yunnan, 457 †
Maerker, Prof. J., Die geographischen Ursachen von Spaniens Niedergang, 112 †
Magagnose, La grotte de, par C. Marcelin, 222 †
Magalla, etc., Bericht über eine Expedition nach, 583 †
Magellan—
Descobrimento das Filippinas pelo navegador Portuguez Fernão de Magalhães, by G. Alberto, 466 †
Maggiore, Lake, depth of, 441
Magnetic Field of the Earth, The Secondary, by A. W. Rücker, 588 †
Magnetic Results at Greenwich and Kew discussed and compared, by W. Ellis, 345 †

Magnus, Dr., Zur Siedelungskunde von Norwegen, 223 †
Maize and its Uses, by R. W. Dunham, 234 †
Makran, Surveys in, 313
Malabar and Coromandel coasts, Rivers of, 409
Malaria—
Treatment of Malaria and Blackwater Fever, by W. H. Crosse, 125 †
Ulteriori ricerche sulla malaria, del Grassi, Bignami, e Bastianelli, 347 †
Malay Archipelago—
Federated Malay States, Report of the, 581 †, 662
Geologic Structure of the, by B. Kotô, 580 †
Life in the Malay Peninsula, by H. Clifford, 580 †
Maldonado's discovery of the Madre de Dios, 447
Malta—
Despatch, Copy of a, addressed to the Secretary of State for the Colonies by Sir A. L. Fremantle, 676 †
Malverns, Southern, Geological Structure of the, by Prof. T. T. Groom, 332 †
Mamaidi, Niger Protectorate, 181
Mammals, The Geography of, by W. L. and P. L. Sclater, 123 †
Man and his Work, by A. J. and F. D. Herbertson, 588 †
Man, Past and Present, by A. H. Keane, 124 †; note on, 449
Manchuria, Notes of a Tour in "No Man's Land," by R. T. Turley, 292 *
Manen, Léopold, par G. Hérand, 346 †
Manfredi, P., Nuova Carta della regione ad Oriente del Mar Morto, 116 †
Manila—
Manila under the Americans, by Captain Simonds, 581 †
Stimmungsbilder aus Manila, von Major von Sonnenburg, 581 †
Manimani district, Central Africa, 136
Manzi, A., Quello che ho Veduto al Parà, 684 †
Maperi valley and river, Bolivia, 16
Map-making, the Science of, Mr. Gannett on, 450
Map projections—
Vergleichung einiger Abbildungen eines kleinen Stücks der ellipsoidischen Erdoberfläche, Von E. Hammer, 344 †
Map Slides for educational purposes, produced by Mr. Dickenson and Mr. Andrews, 672
Maps—
Construction of Maps, Data for the, 543
Guide to Recent Large-scale Maps, etc., by A. Knox, 237 †
Natural Scale for Maps, 543
New Light on some Mediæval Maps, by C. R. Beazley, 620 *
Orthography, etc., of Names for the National Maps, by H. T. Crook, 691 †
Maps—*continued*.
Population Maps, 543
World on the Scale of 1 : 1,000,000 .. 543
Maps, New—
Africa, 126, 349, 469, 694
America, 126, 239, 349, 469, 590, 695
Asia, 126, 238, 348, 468, 693
Australasia, 127, 469, 695
Charts, 127, 239, 349, 469, 591, 695
Europe, 125, 237, 347, 467, 590, 691
General, 127, 239, 349, 469, 590, 695
Maquet, M., L'Engadine, le Massif de la Bernina, 224 †
Maraghs, Marble quarries at, 517
Maravilla, Lake, Patagonia, 256
Marcel, M., Discovery of Old Geographical Documents in Switzerland, 216; Note sur une Mission géographique en Suisse, 235 †
Marcelin, C., La grotte de Magagnosc, 222†
Marchand, Le Retour de, par G. Demanche, 336 †
Marcillac, J. de, Les Chemins de fer en Chine, 457 †
Marco Polo—
Influence of, on Gastaldi's Maps of Asia, by Baron A. E. Nordenskjöld, 466 †; Zur Erinnerung an, von Dr. E. Schäfer, 235 †
Marine Deposits on the Ocean-floor, 431
Marine Faunas of the Arctic and Antarctic Regions, On a supposed resemblance between the, by D. W. Thompson, 588 †
Marinelli, O., Spostamento della foce del Simeto, 331 †; Studi orografici nelle Alpi orientali, 109 †
Markham, Sir C.—
Address to the Royal Geographical Society, 1 *; Opening Address, Session 1899–1900 .. 593
Antarctic Expeditions, 473 *
Memorandum on Wiche's Island, 177
Remarks: at Anniversary Dinner, 107; "Explorations in the Bolivian Andes," 31, 33; "Explorations in Patagonia," 374, 377; "Journeys to the North of Uganda," 152, 155; National Antarctic Expedition, 193, 199; presenting medals, 102, 103; "Travels in Bokhara," 619
Marocco—
Expeditions: Dr. Weisgerber's, 564; Dr. Fischer's, 209
Geology of Southern Morocco and the Atlas Mountains, by the late J. Thomson, 337 †
Moorish Empire, The, by B. Meakin, 682 †
Photographs of, by W. Hind Smith, 239
Reisen im Marokkanischen Atlas, von Dr. Fischer, 228 †
Marr, J. E., Development of British Scenery, 333 †
Marseilles—
Études sur Marseille et la Provence, 222 †

Marshall, W. W., The Importance of Sea Power, etc., 689 †
Martel, E. A., on underground rivers, 404
Martineau, G., The Statistical Aspect of the Sugar Question, 346 †
Marvin, C. F., The Use of Kites in the Exploration of the Upper Air, 345 †
Maryland, Labadist Colony in, by B. B. James, 584 †
Masai tribe, 146, 147
Matese, Il lago del, by G. de Agostini, 111 †
Mathew, J., Eaglehawk and Crow, a Study of the Australian Aborigines, 685 †
Mathews, R. H., Divisions of Queensland Aborigines, 231 †; Australian Divisional Systems, 685 †
Matthew, G., and S. W. Kain, On Artesian and Fissure Wells in New Brunswick, 461 †
Mau plateau, British East Africa, 275, 276
Maunoir, Ch., Rapport sur les travaux de la Société de Géographie, etc., 691 †
Maurer, Dr., observations for latitude, etc., in Kilimanjaro region, 321
Mauritius, Sugar Industry of, by J. F. Anderson, 118 †
Maxse, Major, remarks on "Journeys to the North of Uganda," 153
Mayer river, Patagonia, 264
Mayo river, Patagonia, 356
Mayon, Eruption of, Father Coronas' account of, 92
Mayumbe, Le, par M. Vanden Plas, 336 †
"Mazzagua" corn, 630 *note*
Mbinzau peak, British East Africa, 279
Meakin, B., The Moorish Empire, 682 †
Measures—
  Ancient Standards of Measure in the East, by Sir C. Warren, 465 †
  Uniformity in, 544
Mecca, Burton's Pilgrimage to, 334 †
Medals, etc., of R.G.S., presentation of, 102
Mediterranean—
  Admiralty Surveys in the, 85
  Pilot, The, vol. iii., 675 †
  Physical Conditions of the Mediterranean Basin, by Prof. Hull, 455 †
Meetings of the R.G.S., Session 1898–99.. 102, 220, 329; Session 1899–1900.. 673
Mehlis, Dr., Glaciale Erscheinungen vom Hartgebirge, 223 †
Meinecke, G., Siedelung in den Tropen, 466 †
Mekong river, 384, 385
Melin, Atlas, Historique et Géographique, par A. Paris, 127
Mellier, E., Projet d'utilisation de la grotte de Goule-Noire, 330 †
Melville, Commander, plan for drift-casks for arctic currents, 327
Men and Women of the Time, by V. C. Parr, 689 †
Meng Lung and Meng Cheh, Shan States, 381
Mercantile Marines—
  Flottes de commerce et le trafic maritime, par A. Huni, 234 †
Mercier, G., L'expansion de la France dans le sud Algérien, 680 †
Merian, A., The Seychelle Islands, 225 †
Mersey River, Report on Navigation of the, by Sir G. Nares, 578 †
Mertens, Dr. A., Der Hopfenbau in der Altmark, 577 †
Meteorological Charts of the Southern Ocean, 695
Meteorological Council, Report of the, 333 †
Meteorological Extremes—Pressure, 465 †
Meteorological Observations at Sea, Value of, by W. C. Hepworth, 233 †
Meteorology—
  Einzelbeobachtungen vom Ozean anzustreben? von Dr. Köppen, 344 †
  Weather Bureau Officials, Proceedings of the Convention of, 587 †
Metis, volcanic island, 85
Mexico—
  Picturesque, by Marie R. Wright, 120 †
  Romero, M., work on, 94
  Sinaloa; un des États-Unis du Mexique, par M. Schœnfeld, 229 †
Meyer, Dr. Hans, Die Gletscher des Kilimandjaro, 118 †; Barometrische Hohenmessungen am Kilimandjaro, 681 †
Meyer, Dr. Hermann, journeys in Central Brazil, 324; über seine zweite Reise in Central-Bresilien, 341 †
Meyer's Hand-Atlas, 239, 349, 469, 591, 695
Miandab town, 519
Michelet—
  Comment Michelet est devenu historien et géographe, par L. Drapeyron, 235 †
Michigan, Lake, Ecological Relations of the Vegetation on the Sand-dunes of, by H. C. Cowles, 683 †; note on, 668
Migration, Phénomène de la, par E. Van den Broeck, 123 †
Military Geography, Methods of, Prof. Barré on, 672
Mill, Dr. H. R., Prof. Davis on Physical Geography, 183; on underground rivers, 404; on terminology of sub-oceanic reliefs, 550; review on Bartholomew's Physical Atlas, 649; The International Geography, edited by, 691 †; review on, by Major Darwin, 656
Mille, P., Colonies juives et allemandes en Palestine, 116 †
Miller, Prof., Mappæmundi edited by, 620
Minas Geraes, A Journey to the Diamond Fields of, 120 †
Mineral Resources of the United States, 340 †
Mine-surveying Instruments, The Evolution of, by D. D. Scott, 344 †

Mines and Quarries, General Report and Statistics, 333 †
Minnesota, Distribution of the Keewatin in, by Prof. C. Hall, 684 †
Mischlich, Dr., on the Harmattan wind, 445
Missionary Reports—
Free Church of Scotland, Report on Foreign Missions, 691 †
Propagation of the Gospel in Foreign Parts, Report of Society for the, 589 †
Mississippi, Problem of the, by H. Haupt, 120 †
Misti mountain, Bolivia, 24
Moën and Rügen, Chalk and Drift in, by Prof. Bonney and Rev. E. Hill, 674 †
Moguez, E. H., La Crète Autonome, 455 †
Mohawk Valley, Topography and Glacial Deposits of, by A. P. Brigham, 584 †
Mohn, Prof. H., Das Hypsometer als Luftdruckmesser, 464 †; Klima-Tabeller for Norge, 112 †; map of King Charles Land, 69
Mokpo, port, Korea, 561
Molesworth, Sir G. L., Photographs of British East Africa, etc., 352; Sir G., Report on the Uganda Railway, 209, 338 †
Monaco—
Musée océanographique de Monaco, 345 †
Monaco, Prince A. de, Exploration océanographique aux régions polaires, 343 †
Monnier, Auf den, von Dr. Mader, 330 †
Montana—
Granites of Carbon County, by J. P. Kimball, 584 †
Judith, Mountains of, Geology . . . of the, by Weed and Pirsson, 340 †
Montañas, Canal de las, 255
Mont Blanc—
Recherches géologiques . . . sur le massif du Mont Blanc, par MM. Duparc et Mrazec, 222 †
Montenegro, Botanischen Reise nach, von B. Horák, 112 †
Mont-Saint-Michel, Bay of, Transformations in the, 204
Moore, J. E. S., soundings in Lake Nyasa, 319
Moravia—
Holsteiner Thal; eine Karststudie aus Mähren, von R. Trampler, 576 †
Moravian Missions, Periodical Accounts, 237 †
Moreing, C. A., An All-British Railway to China, 678 †
Moreno, Dr. F., Explorations in Patagonia, 241 *, 353 †; letter from, on Dr. Steffen's explorations in South America, 219
Morocco: *see* Marocco
Moroto mountain, Central Africa, 136
Morphology of the Tian Shan, Dr. Friederichsen on, 661
Morris, D. B., Geography of the Forth Valley, 333 †
Morris, Prof., Terra Australis Incognita, 586 †
Morton, Captain, on cable fracture off Pescadores point, 400
Moscow—
Observations faites à l'observatoire météorologique de l'Université Impériale de Moscou, 224 †
Mossley, L. H., Regions of the Benue, 630 *
Moshi, The Loss of, 682 †
Mountaineers, The Early, by F. Gribble, 347 †
Mountains—
Gebirgsbildung im paläozoischen Zeitalter, von Dr. F. Frech, 587 †
Moxly, Rev. J. H., The Tides simply explained, 123 †
Mozambique and Quilimane, Trade of (Foreign Office Ann.), 583 †
Muani, East Africa, 272
Mudge, E. H., Mouth of Grand River, 584 †
Muir glacier, Alaska, 525
Müller, Dr., Die Südarabische Expedition . . . des Grafen Carlo Landberg, 333 †
Müller, F., Remarkable Maps of the fifteenth, sixteenth, and seventeenth centuries, 127; The Sacred Books of the East, 589 †
Muller, G., Neuer Verkehrs-Plan von Groso-Berlin, 691
Munchi country and tribe, Benue district, 634, 635
Muri state, Benue region, 631
Muroni river valley, British East Africa, 308
Murray islands, Torres Straits, 304, 305
Murray, J., A Handbook of Rome and the Campagna, 111 †; ditto of Warwickshire, 113 †; ditto of Hampshire, 113; ditto of Somerset, 332 †; Handbook for Residents, etc., in Wilts and Dorset, 677 †
Murray river, Filtration of, 408
Murray, Sir John, Address to the Geographical Section of the British Association, 688 †; Oceanography, 426 *; on material of sea-bottom off Cape Verde, 403; on the Temperature of the Floor of the Ocean, etc., 34 *; remarks on receiving American Medal, 105
Musset, M., Les Rochelais à Terre-Neuve, 461 †
Mweru, Lake, Photographs of country in neighbourhood of, by D. Crawford, 352
Mysore, Gazetteer compiled for Government, by B. L. Rice, 115 †

N.

Nahuel-Huapi, Lake, Patagonia, 359, 364
Nakhar pass, Caucasus, 660

Nandi country, British East Africa, 277
Nangiya-Solian range, 140
Nankin d'alors et d'aujourd'hui, par P. L. Gaillard, 679 †
Nantucket, a Morainal Island, by Curtis and Woodworth, 340 †
Nasa, T., Harbours of Japan, 115 †
Natal Frontier, Philips' Military Map of Seat of War on the, 694
Nathorst, Prof., Förslag till en expedition till östra Grönland, 343 †; Några upplysningar till den nya Kartan öfver Beeren Eiland, 464 †; The Swedish East Greenland Expedition, 97, 534; The Swedish Arctic Expedition of 1898 ..51 *, 155 *, 686 †
National Growth and National Character, by W. J. McGee, 466 †
Nautical Almanac, The American Ephemeris and, 232 †, 464 †
Nautical Astronomy, Simplification of Formulæ in, by H. B. Goodwin, 586 †
Navy, The, as a Motor in Geographical and Commercial Progress, by G. W. Littlehales, 237 †
Nazlu Chai, Lake Urmi region, 506
Neger, Dr., Die botanischen Ziele der Südpolar-Forschung, 343 †; note on, 448
Nemensha country, Algeria, M. Blazac on the geography of, 208
Nerad, S. F., Vztah polocostrova Apenninského ku Balkánskému, 224 †
Nery, Baron de Santa-Anna, Le Pays des Amazones, l'El-Dorado, les Terres à Caoutchouc, 585 †
Netherlands, Reading List on the, by E. G. Thorne, 331 †
Neumayer, Prof. G., Biographical Sketch of, 589 †
Nevins, J. B., Geographical Picture of Mediæval Europe, 110 †
New Britain Islands, Herr Schnee's visit of inspection to the, 570
New Brunswick—
Artesian and Fissure Wells in, by G. Matthew and S. W. Kain, 461 †
"Dip" of the Magnetic Needle in, by Prof. Duff, 338
Natural History, etc., of, Notes on the, by W. F. Ganong, 460 †
Raised Peat-Bogs in, by W. F. Ganong, 119 †
New Caledonia—
Situation économique de la Nouvelle-Calédonie, par A. Jouannin, 342 †
Trade of (Foreign Office Rep.), 463 †
New England, Reading List of, by M. C. Wilson, 340 †; Glacial Wash-Plains of Southern, by J. B. Woodworth, 684 †
Newfoundland—
Admiralty surveys off, 84
Connection of England with, by Sir W. Des Vœux, 683 †
Pêche de la morue sur le grand banc de Terre-Neuve, par A. Bellet, 461 †
Newfoundland—*continued.*
Rochelais à Terre-Neuve, par M. Musset, 461 †
New Guinea—
Chez les Papous, par R. P. Jullien, 685 †
Discovery of, by Antonia D'Abreu, by J. R. McClymont, 463 †
German, Dr. Lauterbach's expedition to, 97
Kaiser-Wilhelmsland, Ueber, 585 †
Vegetation of, Notes on, by F. M. Bailey, 463 †, 585 †
New Light on some Mediæval Maps, by C. R. Beazley, 620 *
New Orleans, Trade of (Foreign Office Rep.), 120 †
New Siberia islands, Russian expedition to, 327
New South Wales—
Aboriginal Carvings of Port Jackson, by W. D. Campbell, 463 †
Artesian Water in, by J. W. Boultbee, 686 †
Historical Records of, by F. M. Bladen, 585 †
Jenolan Caves and Blue Mountains, by Argus, 686 †
Lands, Department of, Annual Report, 121 †
Mines and Agriculture, Department of, Annual Report, 121 †; Notes on the Occurrence of Bismuth Ores in, by J. A. Watt, 121 †
Rain, etc., Observations made in, by H. C. Russell, 463 †
Statistical Register, 463 †
Trigonometrical Survey of, etc., by T. F. Furber, 463 †
Wyalong Gold Field, Report on the, by J. A. Watt, 463 †
New York—
Glacial Lakes in, by H. L. Fairchild, 120 †
Juvenile Asylum, Anthropological Investigations on . . . children of the, by Dr. A. Hrdlicka, 461 †
State, Physical Geography of, by R. S. Tarr, 120 †, 229 †, 584 †
New Zealand—
Sketch of the New Zealand War, by M. S. Grace, 686 †
Statistics of the Colony of, 463 †
Westport Harbour in, Wave Basin, by T. H. Rawson, 464 †, 686 †
Ngami-Land, Reisen im, von Dr. Passarge, 228 †, 311, 312
Nicaragua—
American Interoceanic Canal, The Proposed, by J. Nimmo and E. Johnson, 685 †
Estudios sobre el Canal de Nicaragua, par A. Llopis, 463 †
Nicaragua and the Isthmian Routes, by A. P. Davis, 462 †
Nicaragua Canal Route, by Dr. C. W. Hayes, 685 †
Nicaragua-Kanal, Vom, von Dr. Polakowsky, 121 †

Nicaragua—*continued.*
Physiography of the Nicaragua Canal Route, by C. W. Hayes, 463 †
Nichols, H. W., The Ores of Colombia, 684 †
Niger—
Bassin du, 337 †
Boucle du Niger, Mission Blondiaux, 118 †
Chemin de Fer de Conakry au Niger navigable, par Captain Saleases, 118 †
France dans la Boucle du Niger, par M. Voulet, 227 †
French Niger Territory, 118 †
Future of the Niger, by F. A. Edwards, 460 †
Railway, The French, 564
West African Frontier Force (Colonial Reports), 460 †
Nigeria, A Glance at, by H. Bindloss, 682 †
Nile—
Barrage on the, 663
Grands travaux en cours d'exécution dans la vallée du Nil, par J. Brunhes, 336 †
Nile Flood, 1892, by W. E. Garstin, 227 †
Survey of the, Proposed, 227 †
Upper, Swamps of the, 208
Nilsson, H., Om . . . botaniska arbetena under Andrée-efterforsknings-expeditionen till Sibirien, 581 †
Nitche, Dr. R. L., on the Guayakis of Paraguay, 567
Njemps to Marich, Save, and Mumia's, From, by Major Austin, 307
Nkata bay on Lake Nyasa, longitude of, 667
"No Man's Land," Manchuria, 292, 293
Nordahl, B., In Nacht und Eis, Supplement, Wir Framleute, 231 †
Nordenskjöld, Baron A. E., The Influence of Travels of Marco Polo on Gastaldi's Maps of Asia, 466 †
Nordenskjöld, O., En expedition till Klondike, 120 *; Ueber einige Erzlagerstätten der Atacamawüste, 684 †
Nordenskjöld's Periplus, von K. Kretschmer, 235 †; by F. Wieser, 689 †
Nordmark, Géologiak Beskrifning öfver, af W. Petersson, 676 †
Norrland—
Praktiskt Geologiska Undersökningar inom Vesternorrlands, 676 †
North Sea—
Pilot, Supplement, 455 †
Tidal Currents of the, by A. Buchan, 588 †
Tidal streams of the (charts), 351
Norway—
Fortsatte Bidrag til Nordmændenes Anthropologi, af C. Arbo, 112 †
Klima-Tabeller for Norge, af H. Mohn, 112 †
Lebermooseflora Norwegens, von Kaalaas, 112 †
Mountaineering in Arctic Norway, by W. C. Slingsby, 223 †
Norway—*continued.*
Norway, Sweden, and Denmark, Handbook for travellers, by K. Baedeker, 224 †
Pêche en Norvège, par J. Pérard, 331 †
Siedelungskunde von Norwegen, von Dr. Magnus, 223 †
Trade of (Foreign Office Rep.), 455 †
Nourse, T., Les pêcheries de la Vénétie, 675 †
Nova Scotia, Studies in the Gold-Bearing States of, by J. E. Woodman, 461 †
Novaya Zemlya—
Kalksteinfauna des Cap Grebeni, etc., von Th. Tschernyschew und N. Jakowlew, 455 †
Nüchter, F., Das Fichtelgebirge in seiner Bedeutung für den mitteleuropäischen Verkehr, 453 †
Nyasa, Lake, Depth of, Mr. Moore's soundings, 319; Lieut. Rhoades' longitudes of, 319; German scientific researches on, 94

O.

Oaxaca, Western, O. H. Howarth on, 669
Obituary list for 1898–99.. 100
Obosomtwé, Le lac, par E. Perregaux, 117 †
O'Callaghan, Mr., remarks on "Road-making and Surveying in British East Africa," 290
Ocean—
Depths and Serial Temperature Observations of, List of, 465 †
Depths of the, 428; temperature, 429; marine deposits, 431; life on floor of, 433
Floor of the, On the Temperature of the, by Sir John Murray, 34 *, 587 †
Terminology and Nomenclature of Suboceanic Relief, 544, 550
Oceanic Circulation, The effect of Ice-melting on, 587 †; Oceanic Islands, Nomenclature of, 545
Oceanographic Research, Prof. Pettersson on Methods of, by H. N. Dickson, 185
Oceanographical Research, International, Conference at Stockholm, 646
Oceanography—
Aräometer . . . im Altantischen und im Stillen Ozean, von Dr. Krümer, 688 †
Australasian Association for the Advancement of Science, Address by Sir J. Hector, 466 †
British Association, Address to the Geographical Section of the, by Sir J. Murray, 688 †
Deep-Sea exploring expedition of the *Albatross*, by H. M. Smith, 688 †
Deutsche Tiefsee-Expedition, von Drs. Chun, Schott, und Sachse, 587 †
Examen de l'eau de mer puisée à différentes profondeurs, par A. Gautier, 587 †

Oceanography—*continued.*
Meeresbodens, Die tiefste Depression des, von O. Krümmel, 688 †
Oceanographische Forschungen, Berichte der Commission für, von Dr. Natterer und P. von Pott, 233 †, 587 †
Oceanography, by Sir J. Murray, 426 *
Oderstrom, Der, von A. Penck, 111 †
Odessa, Trade of (Foreign Office Rep.), 577 †
Odierna, G. B., Studio su la Vita di, by A. Licitra, 589 †
Odin et Rabilier, MM., Carte des parages de pêche du thon dans le golfe de Gascogne, 453 †
O'Dwyer, M. F., Agrarian Conditions under British and Native Rule, 334 †
Oehlmann, Dr. E., L'Asie Mineure au point de vue de l'emigration allemande, 579 †
Oetscherhöhlen, Untersuchungen in den, von Profs. Crammer und Sieger, 221 †
Oldham, H. Yule, report on Geography at Cambridge, 88
Oldham, R. D., A Note on the Allah-bund in the North-West of the Rann of Kuchh, 458 †
Olkhon and the Buriats, 116 †
Olufsen, Lieut, expedition to the Pamirs, 561
Omaha tribe, A Study from the, by A. C. Fletcher, 340 †
Omo river, Lake Rudolf, 151
Ophir, The Ancient, letter from Mr. Wilmot on, 220
Opium trade in the Shan States, 390
Oppenheim, Dr., Vom Mittelmeer zum Persischen Golf, 117 †
Oppenheimer, Sir C., Trade of Frankfort-on-Main, 453 †
Oppermann, E., Erklärung geographischer Namen aus der Südpolarwelt, 231 †
Ordnance Survey Charts of England and Wales, 125, 237, 348, 467, 590, 691; Ordnance Survey Tidal Observations, 571, 578 †
Oregon, Idaho, and Washington, Trade of (Foreign Office Rep.), 584 †
Organisation d'un voyage d'exploration, par J. Dybowski, 347 †
Orgãos, O "Muricy" da Serra dos, pelo Dr. Huber, 462 †
"Osma" early maps, 623
O'Toole, Rev. H., An Improved Form of Hydrometer, etc., 233 †
Ôtsuji Coal-fields in Ongo, by J. Suzuki, 580 †
Oxford, Geography at, Mr. Mackinder's report on, 87
Oxford School of Geography, 2, 82; programme of, 559
Oxus river, 618

P.

Pacific—
Admiralty surveys in the, 85
Albatross exploring expedition in the, 215
Charts of the (India-rubber, Gutta-percha, and Telegraphs Works), 469
Exploring Expedition to the Mid-Pacific Ocean, by Dr. H. Smith, 588 †
Jesup North Pacific Exploration, 96; Field Work of the, 347 †
Température . . . de l'océan Pacifique, par J. Girard, 123 †
Temperatures of the, 38, 39, 40, 45
Pacific Islands—
Photographs of New Guinea, etc., by W. A. Lucas, 696
Studien und Beobachtungen aus der Südsee, von J. Graf Pfeil, 686 †
Pacific Slope—
Is Climatic Aridity impending on the Pacific Slope? by J. B. Leiberg, 229 †
Redwood Forest of the, by H. Gannett, 229 †
Pai I, or Shans, 382
Paine, Mount, Patagonia, 256
Pakhoi, Trade of (Foreign Office Rep.), 457 †
Palacky, Dr. J., The geographical distribution of turtles, etc., 123 †
Palazzo, L., Carte magnétique de la Sicile, 454 †; Misure magnetiche eseguite in Italia, 454 †
Palena river, Patagonia, 360
Palestine—
Colonies juives et allemandes en, par M. Mille, 116 †
Pali and Mamaida, Notes on a Journey to, by P. A. Clive, 117 *
Palique mountain, Patagonia, 258
Pamirs—
Den anden danske Pamir Expeditions, ved Premierløjtnant Olufsen, 561, 334 †
Pamir Boundary Commission, Proceedings of the, by Lieut.-Colonel Henry Trotter, 334 †
Pando, Colonel, explorations on the Madre-de-Dios, 214
Pan-kiang river, 640
Para—
Album do Pará, do Dr. H. Santa Rosa e F. A. Fidanza, 585 †
Quello che ho Veduto al, by A. Manzi, 684 †
Paraguay—
Guayakis of, Dr. R. Lehmann on the, 567, 685 †
República del Paraguay, por M. G. Jove, 463 †
Trade of (Foreign Office Rep.), 463 †
Paranà, Prozetto per un' impresa di Colonizzazione nello Stato del, by L. Tonissi, 462 †

Paris, A., Atlas Melin, 127
Parsoné, E. W., on cable fractures off Pescadores point, 401
Parsons, Colonel, The Eastern Sudan, 459 †
Partsch, Josef (Biography), 235 †
Passarge, Dr. S., Die Besitzergreifung des Hinterlandes von Kamerun, 337 †; Reisen im Ngami-Land, 228 †; journeys in South Africa, 310
Patagonia—
A travers la Patagonie, par H. de la Vaulx, 585 †
Erforschung des Rio Yelcho oder Futaleufu in West-Patagonien, von Dr. P. Krüger, 462 †
Expeditions in: Chilean, 568; Dr. Steffen's, 568; Dr. Krüger's, 324
Explorations in, by Dr. F. Moreno, 241 *, 353 *
Geological features, 366–367, 375; plateaus, 367; glaciers and ice-sheet, 368; pampean formation, 369; marine deposits, 369; fossils, etc., 370; Indians, 370–372; currents off coast, 376
Origin of name, letter from A. M. Robinson on, 673
Paterson, Major, photographs of Venezuela, 240
Patras, Trade of, etc. (Foreign Office Rep.), 111 †
Patterson, Rev. G., obituary notice of, 235 †; Supplementary Notes on Sable Island, 229 †; Termination of Sir Humphrey Gilbert's Expedition, 235 †
Paulitschke, P. (Biography of), Dr. Max Schoeller, 236 †
Payeur-Didelot, M., Deux ans et demi au continent Mystérieux, 228 †
Peaks and Pines, by J. A. Lees, 676 †
Peal, S. E., Ein Ausflug nach Banpara, 114 †
Pearson, H. W., The Botany of the Ceylon Patanas, 456 †
Peary, Lieut., Arctic Expedition of, 325, 448, 570
Péchy, E. v., von Josef Homolka, 235 †
Peek, Sir C. E., Rousden Observatory, Devon, Meteorological Observations, 677 †
Pemba—
Insel Pemba und ihre kleinen Nachbarinseln, von Dr. O. Baumann, 458 †
Penck, A., Der Illecillewaetgletscher im Selkirkgebirge, 119 †; Die Pole der Landoberfläche, 233 †; on the Pole of the Land hemisphere, 98
Peneplain, The, by W. M. Davis, 344 †
Pérez, A. G., The Independence of Cuba, 230 †
Pernambuco, Trade of (Foreign Office Rep.), 462 †
Perregaux, E., Le Fétichisme, 235 †; Le lac Obosomtivê, 117 †
Perrott, C. H., Finland: an English Journal devoted to the Cause of the Finnish People, 455 †
Persia—
Coming Struggle for, by R. P. Lobb, 680 †
La Perse, par E. Reclus, 225 †, 335 †
Photogravures of, by Dr. Sarre, 472
Strategic Relation of Persia to British Interests, by Sir R. Temple, 581 †
Trade Routes, Mr. Hotz on, 91
Persian Gulf, Fresh-water springs in the, 409
Peru—
Diccionario Oriental del Peru, por Dr. C. Osambela, 585 †
Geographical and Statistical Synopsis of, 341 †
Itinerario de los viajes de Raimondi en el Perú, 585 †
Nouvelle mesure d'un arc de méridien, par M. Bourgeois, 685 †
Submarine river escape on coast of, 398
Trade and Finances of Peru for 1898 (Foreign Office Rep.), 585 †
Yauyos, Provincia de, por R. Rey y Basadie, 585 †
Pescadores point, Submarine river escapes off, 400, 401
Pestalozza, G., Notizie sull' Africa Orientale Tedesca, 118 †
Peters and Brooks, Messrs., expedition to Alaska, 322
Petersen, Dr. J., Beiträge zur Kenntniss der Bewegungsrichtungen des diluvialen Inlandeises, 123 †
Petherick, E. A., Edwards's Australasian Catalogue, 231 †
Petitot, E., De Carlton House au Fort Pitt, 119 †
Pettersen, Captain, map of King Charles Land, 72
Pettersson, Prof., on Methods of Oceanographic Research, by H. N. Dickson, 185
Peutinger, Table de, par Cap. Guyot, 235 †
Pfeil, Count, Studien und Beobachtungen aus der Südsee, 686 †
Pfister, C. (Biography of), J. V. Barbier, 124 †
Philip, G., Military Map of Seat of War on the Natal Frontier, 694
Philippines—
Archipiélago Filipino, 115 †
Baguios ó Ciclones Filipinos, por P. J. Algué, 335 †
Bevölkerung der Philippinen, von R. Virchow, 335 †
Birds, List of, etc., by D. C. Worcester and F. Bourns, 226 †
Economic Condition of the, by Max Tornow, 116 †
Filipinos als Herren im eigenen Hause, von F. Blumentritt, 226 †
Manila and the, by Major von Sonnenburg, 115 †
Manila under the Americans, by Captain Simonds, 581 †

Philippines—*continued.*
Maps: Carta General del Archipélago Filipino (V.S. War Department), 238
Meteorology in the, 581 †
Philippine Islands, by J. Ogawa, 680 †
Philippinen, Die, von N. Post, 115 †
Philippines and round about, etc., by Major Younghusband, 116 †
Philippines and their Future, 581 †
Philippines: L'insurrection de 1896–97, par C. de Lasalle, 581 †
Political, etc., History of the, by J. Foreman, 115 †
Stimmungsbilder aus Manila, von Major von Sonnenburg, 581 †
Wirthschaftliche Zukunft der Philipinen, 680 †
Photocol-Sammel-Atlas, Der, von Dr. Zimmerer, 236 †
Photogrammetrische Höhenmessen, von A. Freiherrn von Hübl, 344 †
Photographs—
Africa, British East, etc., by Sir G. Molesworth, 352
Baluchistan, British, etc., by G. P. Tate, 352
Caucasus, by M. de Déchy, 469
Hungary (Geographical Institute of the Royal Hungarian University), 470
Luchu Island, Great, by Mr. Clutterbuck, 592
Morocco, by W. W. Hind Smith, 239
Mweru, Lake, Neighbourhood of, by D. Crawford, 352
Pacific Islands, by W. A. Lucas, 696
Persia, by Dr. F. Sarre, 472
Sierra Leone and the Gold Coast, by W. S. Johnston, 240
Transylvania, by Dr. Lóczy, 592
Venezuela, by Major S. Paterson, 240
Physical Atlas, Bartholomew's, 590; review on, by H. R. Mill, 649
Phyto-geographical Terminology, 545
Pibor river, East Africa, 153
Picard, E., L'enseignement rationel de la géographie, 589 †
Pico de Paris and Pico del Indico, Bolivia, 31; Pico river, Patagonia, 358
Pigafetta, Primer viaje alrededor del mundo por el, traducción por M. Walls y Merino, 688 †
Pike, Mr., visit to King Charles Land, 75, 76
Pini, E., Spedizioni polari antartiche, 586 †
Pitard, E., Contribution à l'ethnographie du Valais, 224 †
Plants—
Géographie des plantes avec la physiologie pour base, par Ch. Flahault, 345 †
Plarr, V. C., Men and Women of the Time, 689 †
Pleyn, Dr., explorations in the Congo basin, 444
Plymouth and Neighbourhood, Plan of, by J. Bartholomew, 468
Plympton, C. W., Select Bibliography on Travel in North America, 339 †
Polakowsky, Dr. H., vom Nicaragua-Kanal, 121 †
Poland—
Sprawozdanie Komisyi Fizyograficznej, 329 †
Trade and Agriculture of Poland and Lithuania (Foreign Office Rep.), 577 †
Polar regions—
Befahrung der Meere hoher Breiten mit Hülfe von Eisbrechern, nach Admiral Makaroff, 343 †
Explorations océanographique aux régions polaires, par Prince Albert de Monaco, 343 †
Pole der Landoberfläche, von A. Penck, 233 †; note on, 98
Pole, South: *see* Antarctic
Polis, Dr. P., Anwendung . . . in au medicinischen Klimatologie, 687 †
Polynesians, Geographical Knowledge of the, by S. P. Smith, 589 †
Pomba, Cesare (Biography), 236 †; Pio Ricordo di, 589 †
Poncins, Vicomte E. de, Voyage au Choa, 118 †
Pontavice de Heussey, Comte du, remarks at Anniversary Meeting, 102, 107
Poole, R. L., Historical Atlas of Modern Europe, 126, 468
Population, Movement of, in Northern Baden, Dr. Carl Uhlig on, 89; Population of Unorganized Countries, 545
Porter, R. P., Industrial Cuba, 230 †
Porter, T. C., Impressions of America, 461 †
Portman, M., Notes on the Languages of the South Andaman Group of Tribes, 114 †
Porto Rico—
Reise-Eindrücke aus Puertorico, von Dr. Hübener, 685 †
Portuguese Colonies, by M. H. Barré, 237 †
Portuguese Discoveries on West Coasts of Africa, 665
Portuguese early maps of Java, 423
Post, N., Die Philippinen, 115 †
Preece, —, Trade of Ispahan and District, 581 †
Pringle, Captain, remarks on "Journeys to the North of Uganda," 152
Pritchett, Dr., Magnetic Survey of the United States, 339 †
Provence, In, by H. Lynch, 675 †
Prussia—
Philipponen in Ostpreussen, von Dr. Tetzner, 577 †
Polnischen Niederlassungen im Ruhrkohlenreviere, von T. Kellen, 111 †
Ueber die Moore des Königreichs Preussen, 111 †
Puerto Rico—
Military Map of (U.S. War Department), 239

Puget Sound, Some Coal-fields of, by B. Willis, 341 †
Pugh's Almanac and Queensland Directory, 231 †
Punjab—
Administration of the, Report, 225 †
Tribes and the Land of the, by Sir C. Roe, 115 †, 225 †
Purchas's account of Wiche's Land, 156
Pygmées, Les, Négrilles d'Afrique, par M. Le Roy, 227 †
Pyrenees—
Quelques lacs des Pyrénées, par Delebecque et Ritter, 112 †

Q.

Quebec, Surface Geology and Auriferous Deposits of, by R. Chalmers, 683 †
Queensland—
Charters Towers Goldfields, Geological Map of, 127
Divisions of Queensland Aborigines, by R. H. Mathews, 231 †
Early Exploration on the Logan, etc., by R. M. Collins, 122 †
Geology of Country round Stanthorpe, etc., by S. Skertchly, 122 †
Guide to, by C. S. Rutlidge, 686 †
Maps: Geological map of, by R. L. Jack, 469
Mesozoic Coal Measures of Stanwell, Report on the, by B. Dunstan, 464 †
Pugh's Almanac and Queensland Directory, 231 †
Surveyor-General, Report of the, 122 †
Quilleutes and Quinault tribes, 96
Quito, Arc of Meridian at, Re-measurement of the, 323

R.

Ragundadalens Geologi, Om, af A. G. Högbom, 676 †
Railway Project for the Congo State, 211
Rain—
Distribution of, over the British Isles, by E. J. Symons and H. S. Wallis, 678 †
Monthly Rainfall over the Land Surface of the Globe, by A. J. Herbertson, 688 †
Ocean Rainfall by Rain-gauge Observations at Sea, by W. G. Black, 465 †
Rainier, Mount, Glaciers of, by Russell and Smith, 341 †
Rajna, M., Una discussione su l'Unificazione del Calendario, 586 †
Ramiefaser und die wirtschaftliche Bedeutung der Ramiekultur, von A. Schulte, 234 †
Ramsay, Captain, astronomical observations in Tanganyika region, 321
Ratzel, Dr. F., Anthropogeographie, 124 †; Korsische Städte, 577 †; La Corse, Étude anthropogéographique, 453 †
Ravenstein, E. G., The Climatology of Africa, 226 †; remarks on "Road-making and Surveying in British East Africa," 291
Rawson, T. H., Westport Harbour, New Zealand, 464 †
Recherche bay, Spitsbergen, 61
Reclus, E., La Perse, 225 †, 335 †
Reclus, O., Le Plus Beau Royaume sous le Ciel, 330 †
Red river, Shan States, 381
Red Sea—
Admiralty Surveys in the, 85
Oceanographische Forschungen im Rothen Meere, 233 †
Reed, J. H., Fashoda and the Bahr-el-Ghazel, 459 †
Reinecke, Dr., Zur Kennzeichnung der Verhältnisse auf den Samoa-Inseln, 464 †
Reuter, Dr. J. N., Russia in Finland, 112 †
Revelli, P., Il Viaggio in Oriente di Vitaliano Donati, 459 †
Rheinproving, Niederschlagsverhältnisse der Mittleren, von Dr. Polis, 675 †
Rhins, M. D. de, Mission in Central Asia, Final Results, 442
Rhoades, Lieut., longitudes of Lake Nyasa, 319
Rhodes—
Geologische Uebersichtskarte der Insel Rhodus, von G. von Bukowski, 455 †
Rhodesia—
Geodetic Survey of, 667
Rhodesia, 1889–99, 582 †
Southern: Orders in Council, 338; Précis of Information concerning, by Major Dawkins, 338 †
Travels and Researches in, by H. Schlichter, 458 †
Rhodesian Art, letter from Wm. Copeland on, 101
Ribaud, M., Japon historique et artistique, 115 †
Ricchieri, Prof.—
Colonizzazione e Conquista, 346 †
Di alcuni studi di storia della Geografia antica, 235 †
L'Italia in Cina, 456 †
Saggi di correzione dei nomi locali nelle carte topografiche . . . la Sicilia, 454 †
Rice, B. L., Mysore, A Gazetteer compiled for Government, 115 †
Richards, —, Trade of Damascus, 582 †
Richet, E., Rapport sur un projet d'expédition au Labrador, 119 †
Richter, Prof. E.—
Die Grönland-Expedition der Gesellschaft für Erdkunde in Berlin, 232 †
Neue Ergebnisse und Probleme der Gletscher-Forschung, 232 †
On Recent Glacier Investigations, 316
Stehende Seespiegelschwankungen auf dem Traunsee, 110 †
Rickmers, Mrs., remarks on "Travels in Bokhara," 617

Rickmers, W. R., Die Barren der Danduschka, 582†; Der Uschba im Kaukasus, 116†; Travels in Bokhara, 596*; Ushba, 680†
Rijnhart, M., journey in Eastern Tibet, 205; et Mme., Voyage de, dans le Tibet, oriental, 114†
Rio de Janeiro, Trade of (Foreign Office Rep.), 462†
Riouw- und Lingga-Archipel, 115†
Ripley, W. Z., Selected Bibliography of the Anthropology and Ethnology of Europe, 576†
Rivers—
Clarification of River Waters, by A. Hazen, 123†
Development of, by S. S. Buckman, 113†
Development of River Branches, 490; Relation of River Ability and Load, 490; Development of River Meanders, 493
Subterranean, 405–409
Road-making and Surveying in British East Africa, by Captain Smith, 269*
Robinson, A. M., letter from, on origin of the name of Patagonia, 673
Rock-specimens, Petrographical Notes on, from Lake Urmi region, 521
Rocky Mountains of Canada, Letter from Prof. J. Norman Collie on, 100
Rodger, J. P., Selangor Administration Report, 679†
Rödö—
Om Rödöområdets, af P. J. Holmquist, 677†
Roe, Sir C., Tribes and Land of the Panjáb, 115†, 225†
Roman "Limes" in South Germany, etc., Dr. Robert Gradmann on, 89
Romanow, P., Das gouvernement Tomsk, 116†
Rome, Handbook of, by J. Murray, 111†
Romero, M., work on Mexico, 94
Rosberg, J. E., Dynerna på Tauvonsaari, 332†
Rosetti, E., Emilia e Romagna, 111†
Rotch, A. L., Exploration of the Free Air by means of Kites, etc., 345†
Rousden Observatory, Devon, Meteorological Observations made under superintendence of Sir C. E. Peek, 677†
Rouville, P. G. de, Une leçon familière d'anatomie du globe terrestre, 234†
Rovuma bay, Submarine river escape in, 397, 398
Rowten-Pot (Yorkshire), La descente de, 224†, 658
Royal Geographical Society—
Address, Opening, Session 1899–1900, by Sir C. Markham, 593
Address to the, by Sir C. Markham, 1*
Anniversary Meeting, 102; Dinner, 107
Meetings of, Session 1898–99..102, 220, 329; Session 1899–1900..673
Rozenraad, C., The Commercial Development of Germany, 110†
Ruanda, Bericht über einen Zug nach, 583†
Rubber plants of West Africa, Herr Schlechter on, 445
Rücker, Prof. A. W., remarks on the National Antarctic Expedition, 198
Rudolf, Lake, Captain Welby's explorations in region of, 318; Lake Rudolf, by Major Austin, 148*
Ruge, Dr. W., und Dr. E. Friedrich, Archäologische Karte von Kleinasien, 348
Rukwa Plain, Mgr. Lechaptois' journey in the, 666
Rumania—
Marele Dictionar Geografic al Romîniei . . . de G. J. Lahovari, 676†
Trade of (Foreign Office Rep.), 455†
Trebuinta de a se face cadastrul României, de Gen. Brătianu, 455†
Rumpe, Dr. R., Afrikas Angliederung an die europäische Culturwelt, 680†
Russell, H. C., Current Papers, No. 3.. 465†; Results of Rain, etc., Observations made in New South Wales, 463†; Source of the Periodic Waves, etc., 232†; Water-spouts on the Coast of New South Wales, 345†
Russia(n)—
Arctic Research, 327
Colonisation russe dans les gouvernements d'Oufa et d'Orenbourg, par P. d'Almeida, 112†
Entwicklung der russischen Militär-Kartographie, von S. Truck, 332†
Explorations south of Abyssinia, 663
Hydrographic Charts, 351, 695
Notes of a Tour in, by Rev. A. Francis, 676†
Oceanographical work, 438
Province of the North, by A. P. Engelhardt, 112†
Russische Norden und die Murman-Küste, von F. Immanuel, 331†
Tentamen Floræ Rossiæ, by S. Korshinsky, 112†
Rutlidge, C. S., Guide to Queensland, 686†
Ruwenzori, Visits to, by Rev. A. R. Tucker, 680†

S.

Saba, West Indies, Submarine river escape off, 400
Sable Island, Supplementary Notes on, by Rev. G. Patterson, 229†; To utilize Sable Island, by H. B. Small, 583†
Sachse, W., Die Wiederauffindung der Bouvet-Insel, 458†
Sacred Books of the East, edited by F. M. Müller, 589†
Sahara—
Eau dans le Sahara, par M. Lahache, 226†
Erg occidental, Sa traversée de l', par M. Flamand, 226†

Sahara—*continued.*
Foureau-Lamy, La Marche de la Mission, par G. Demanche, 228 †, 336 †
Pénétration du Sahara par l'Algérie, par L. Kryszanowski, 336 †
Question du Transsaharien, par P. Combes, 582 †; ditto, par A. Bernard, 337 †
Transsaharien, Le, par P. Leroy-Beaulieu, 228 †
Saija, G., Sull' ellissoide terrestre, 343 †
St. Helena in ye olden tyme, by R. A. Sterndale, 118 †
St. John, —, Trade and Finances of Peru, 585 †
St. Lawrence—
Lachine Rapids, Temperature of the, by H. T. Barnes, 229 †
Sajama mountain, Bolivia, 25
Salesses, Cap. Le chemin de fer de Conakry au Niger navigable, 118 †
Salinas landing, Monterey bay, California, gully formation in, 412
Salomon, Dr., Gebieten des Adamello und des St. Gotthard, 221 †
Samoa—
Commercial Importance of, by O. P. Austin, 464 †
Kennzeichnung der Verhältnisse auf den Samoa-Inseln, von Dr. Reinecke, 464 †
Navigators Islands, by Commander H. Webster, 464 †
Samoan Crisis and its Causes, by J. G. Leigh, 122 †
Samoanische Königsfrage im Hinblick, von Dr. A. Krämer, 122 †
Valeur économique de Samoa, par D. Bellett, 464 †
Wirtschaftliche Lage auf, von Dr. Krämer, 686 †
Samshui, Trade of (Foreign Office Rep.), 457 †
San Cataldo di Bari, Stazione Astronomica a, by P. L. Cattolica, 464 †
San Clemente Island, Geological Sketch of, by W. S. Smith, 339 †
Sand-plain Formation, by M. L. Fuller, 688 †
Sandy point, Tierra del Fuego, 31
Sanga, Carte de la haute, et du territoire concédé à la Compagnie Sud-Kamerun, 336 †
San Joaquin River, Basin of the South Fork of the, by J. N. Le Conte, 229 †
San Martin Lake, Patagonia, 255, 262, 263
San-Moun, La Baie de, 456 †
Santa Cruz river, 251, 260
Santarem, A boz do Tapajós..a agua subterranea na região de, pelo Dr. Katzer, 462 †
Santa Rosa, Dr., e F. A. Fidanza, Album do Pará, 585 †
São Paulo, Der Staat, und sein Landbau, von Dr. J. v. Siemiradzki, 230 †
Sapper, Dr. K., on the Physical Geography of Central America, 95
Sarawak, Four Hundred Miles in, by Rev. H. Gocher, 679 †
Sarmiento, Mount, Tierra del Fuego, 29, 30; Lake, 256
Sarre, Dr., Photogravures of Persia, etc., 472
Saskatchewan, Sources of the, by W. D. Wilcox, 120 †
Sattima peak, East Africa, 283
Scandinavia—
Om Skandinaviens Geografiska utveckling efter istiden, by G. de Geer, 577 †
Schäfer, Dr. E., Zur Erinnerung an Marco Polo, 235 †
Schardt, H., Les Préalpes Romandes, 109 †
Scharff, Dr. R. F., The History of the European Fauna, 576 †
Schattenplastik und Farbenplastik, von Dr. Heiderich, 122 †
Schirmer, H., Histoire de la découverte . . . des États du Soudan, 119 †
Schlechter, Herr, on the rubber plants, West Africa, 445
Schlegel, Prof. G., Geographical Notes, Ma-it—Ma-jëp-ung, 334 †
Schleswig—
Deutsche und Dänen in Nordschleswig, von P. Langhans, 223 †
Schlichter, Dr. H., Travels and Researches in Rhodesia, 458 †
Schloifer, Lieut., expedition to Lake Tanganyika, 566
Schnee, Herr, visit of Inspection in the New Britain Islands, 570
Schoeller, Dr. Max, von P. Paulitschke, 236 †
Schott, Dr. G., Von der deutschen Tiefsee Expedition, 345 †, 587 †
Schrader and Gerdine, Messrs., expedition to Alaska, 322
Schwabe, K., Mit Schwert und Pflug in Deutsch-Südwestafrica, 337 †
Scientific Literature, The International Catalogue of, 466 †, 467 †
Scientific Societies of Great Britain and Ireland, Year-Book of the, 347 †
Sclater road to the Victoria Nyanza, 278
Sclater, W. L. and P. L., The Geography of Mammals, 123 †
Scorpil, MM., Sources et Pertes des Eaux en Bulgarie, 110 †
Scott, D. D., Evolution of Mine-surveying Instruments, 344 †
Scurvy afloat, On the Decline of, by C. M. Beadnell, 589 †
Sea Barriers, Effect of, by J. F. Newsom, 688 †
Sea-Power and Sea-Carriage, by B. Taylor, 346 †; Importance of Sea-Power, etc., by W. W. Marshall, 689 †
Sea-routes—
Comparaison des deux routes d'Europe à San Francisco, etc, par P. Serre, 232 †
Seidel, H., Togo im Jahre 1897–98..337 †

Seismological Investigations, 345†; Observations, International, 545; Phenomena in Australasia, 342†
Seismology—
Riassunto della sismografia del terremoto del 1894, del A. Riccò, 588†
Selangor Administration Report, by J. P. Rodger, 679†
Semple, E. C., The development of the Hanse Towns, etc., 454†
Serre, P., Comparaison des deux routes d'Europe à San Francisco, etc., 232†
Servia, Trade of (Foreign Office Rep.), 112†
Servigny, J., Les chemins de fer en Chine, 114†
Seton, M., Britain in Africa, 336†
Seton-Karr, W. S., Grant of Rothiemurchas, 689†
Settlement, Ancient, in Kerry, Mr. Macalister's survey of, 658
Severn, The Genesis of the, by S. S. Buckman, 113†; note on, 88
Seychelle Islands, The, by A. Merian, 225†
Shaler, Prof. N. S., Reservoirs of the Cape Cod District, 340†; The International Catalogue of Scientific Literature, 467†
Shanghai, Trade of (Foreign Office Rep.), 679†; to Bhamo through Hunan, Recent Journey from, by Captain Wingate, 689*
Shan States, Chinese, A Trip to the, by F. W. Carey, 378*
Shantung—
Gaedertz' journey in, 206
Rekognoszierungsreise in der Provinz Schan-Tung, von A. Gaedertz, 457†
Schantung und Deutsch-China, von E. von Hesse-Wartegg, 679†
Sharpe, A., explorations at Lake Kivu and Albert Nyanza, 662
Shashi country, German East Africa, 446
Shashih, Trade of (Foreign Office Rep.), 457†
Shaw, Miss Flora, Klondike, 120†
Shazalan Island and Hills, Lake Urmi, 515
Shehuen river, Patagonia, 262
Shoreline Topography, by F. P. Gulliver, 344†
Shillinglaw, J. J., Notes on an Original Chart of the South and East Coasts of Tasmania, 686†
Shin Ping Fu, Manchuria, 294
Shipley, M. A., Some more discoverers of their predecessors' discoveries, 338†
Shipwrecks—
Ort und Ursache der Strandungen deutscher Seeschiffe, von J. Herrmann, 347†
Shishaldin as a Field for Exploration, by J. Stanley-Brown, 583†
Siam—
And its neighbours, by Hon. J. Barrett, 582†
Avenir du Siam, 680†
Siberia—
Botaniska Arbetena under Andrée-efterforsknings-expedition till Sibirien, af H. Nilsson, 581†
Efterforskningarna efter Andrée-expeditionen i Sibirien, af J. Stadling, 582†
Gebirge Nordsibiriens, von Hauptmann Immanuel, 335†
Trans-Siberian Railway, by Lieut.-Colonel Waters, 116†
Travaux de la Sous-Section Troitzkoesawsk Kiakhta Section du pays d'Amour, 581†
Wahrheit über Sibirien, von L. Studnicki, 335†
Sicasica, ruined village near, 23
Sicily—
Carte Magnétique de la Sicile, par L. Palazzo, 454†
Saggi di correzione dei nomi locali nelle carte topografiche . . . la Sicilia, del Prof. Ricchieri, 454†
Spostamento della foce del Simeto, di O. Marinelli, 331†
Sulle identificazione dei fiumi che scorrono presso Girgenti, etc., del Dr. Oliveri, 454†
Sieger, Dr., Allgemeinen Transskription geographische Namen, 691†
Sierra (Nevada), A neglected region of the, by L. Hutchinson, 120†
Sierra Leone, Admiralty surveys in, 84; Protectorate Expedition, 583†; Sierra Leone and the Gold Coast, Photographs of, by W. S. Johnston, 240
Sievers, W., Richard Ludwigs Reisen in Coro, 121†
Sikh War, The First, by Lieut.-Colonel Sinclair, 114†
Silk—
Sericulture and Silk Reeling from the Cocoons, 234†
Silnitzky, A., La province d'Anadyr, 116†
Simeto, Spostamento della foce del, di O. Marinelli, 331†
Simmenthals, Die Krankheit im Volksglauben des, von Dr. H. Zahler, 578†
Simony, Friedrich, Zur Biographie, von Dr. Böhm, 347†
Simpson, Sir G., on glaciers of Alaska, 531, 532
Simpson, Wm., obituary of, 573
Sinai—
Where is Mount Sinai? by Prof. E. Hull, 458†
Sinclair, Lieut.-Colonel, The First Sikh War, 114†
Singer, H., Die Karolinen, 585†
Sip Song Panna, Shan States, 378, 379
Sjögren, Mount, King Charles Land, 162
Skertchly, B. J., On the Geology of the country round Stanthorpe, etc., 122†
Skrine, F. H., and E. D. Ross, The Heart of Asia, 336†; note on, 560
Skrine, F. H., From London to Karachi in a Week, 680†

Slatin Pascià nel Sudân Orientale, 459 †
Slingsby, W. C., Mountaineering in Arctic Norway, 223 †
Small, H. B., To utilize Sable Island, 583 †
Smith, Captain G. E., Road-making and Surveying in British East Africa, 269 *
Smith, Dr. H., Exploring Expedition to the Mid-Pacific Ocean, 588 †
Smith, H. M., Deep-sea exploring Expedition of the *Albatross*, 688 †
Smith, S. P., The Geographical Knowledge of the Polynesians, 589 †
Smith, W. Hind, Photographs of Morocco, 239
Smith, W. S., Geological Sketch of San Clemente Island, 339 †
Smyth's sound, Bolivia, 28
Snelson, Rev. F., Modern Bundooism . . . in Pagan Africa, 458 †
Sobat district and river, 153, 208
Society Islands, Trade of (Foreign Office Rep.), 585 †
Sodom und Gomorrha, Noch ein Wort über die Katastrophe von, von C. Diener, 226 †
Solomon Islands, Photographs of, by W. A. Lucas, 696
Somaliland—
  Voyage au Choa, par Vicomte E. de Poncins, 118 †
Somerset, Handbook for Travellers in, by J. Murray, 332 †
Sonnblick-Vereines, Siebentes Jahres-Bericht des, 329 †
Sonnenburg, Major von, Manila and the Philippines, 115 †; Stimmungsbilder aus Manila, 581 †
Sorata, Mount, Bolivia, 15
Southampton, Antient, Catalogue of Works of Arts belonging to W. B. Hill, 677 †
Southampton Geographical Society's Report, 589 †
Southern Ocean, Meteorological Charts of the, 695
Southport, Fernley Observatory at, Report of Observations, by J. Baxendell, 578 †
Spain—
  Geographischen Ursachen von Spaniens Niedergang, von Prof. J. Maeker, 112 †
  Trade of (Foreign Office Rep.), 577 †
Spencer, Cape, Alaska, 526
Spitsbergen—
  Exploration océanographique aux régions polaires, par Prince A. de Monaco, 343 †
  Swedish Expedition to, 52
Stadling, J., Efterforskningarna efter Andrée-expeditionen i Sibirien, 582 †
Stainier, X., L'Age de la Pierre au Congo, 227 †
Stanford, E., Map of the South African Republic, 349; New map of the Orange Free State, etc., 694
Stanley, H. M., Honour to, 98
Stanley Falls, Le chemin de fer des, 226 †
Stanley, Une étude inédite de, 680 †
Stanley-Brown, J., Shishaldin as a Field for Exploration, 583 †; on Volcanoes of the Aleutian Islands, 567
Steeb, C. R. v., Der Ljubeten in der Sara Planina, 332 †; Die neueren Arbeiten der Mappierungs-Gruppe, 222 †
Steffen, Dr. J., expedition in Patagonia and Chili, 96, 568; letter from F. P. Moreno on, 219
Stein, A., Detailed Report of an Archæological Tour with the Buner Field Force, 458 †, 660
Stein, Baron von, work in the Southern Districts of the Cameroons, 664
Stein, Dr. R., Arctic Expedition of, 571
Stephens, E., The Tasmanian Half-Castes of the Furneaux Islands, 686 †
Sterndale, R. A., St. Helena in ye olden tyme, 118 †
Sterneck, R. v., Das neue Dreiecksnetz . . . oesterreichish-ungarischen, 221 †
Stevens, Sir C., The Port of Calcutta, 334 †
Stockholm, Conference for International Oceanographical Research, 646
Storfjord, Spitsbergen, 62
Strathdearn and the Aviemore Railway, Geological Notes on, by T. D. Wallace, 579 †
Stream Measurements, Report of Progress of, by A. P. Davis, 341 †
Streams, consequent, Development of, 487, 489
Streng, A. E., Djupkarta öfver Lojo sjö, 332 †
Struck, A., Wodena, 224 †
Studnicki, L., Die Wahrheit über Sibirien, 335 †
Sturdza, D. A., Lucrările Comisiunei Europeane a Dunărei, 452 †
Styrie, La Caverne de Ratelstein en, par C. Héréus, 221 †
Suakin, Trade of (Foreign Office Rep.), 459 †
Submarine Rocks, On the Geological Investigations of, by J. Joly, 233 †; Submarine gullies, etc., beneath the sea-level, by H. Benest, 394 †
Sub-Oceanic Physical Features off the Coast of Western Europe, On the, by Prof. Hull, 465 †; Sub-oceanic Continental Slope of North Atlantic, 327
Sudan—
  Convention franco-anglaise, 338 †
  Eastern Sudan, The, by Colonel Parsons, 459 †
  Egyptian Sudan, Sir W. Garstin's report on the, 208
  Equatorial Province, Notes from the, by A. D. Milne, 582 †
  French Expeditions in the, 320
  Histoire de la découverte . . . des Etats du Soudan occidental, par M. H. Schirmer, 119 †

Sudan—*continued.*
Mission chez Samory, par M. le Filiâtre, 681 †
Slatin Pascià nel Sudàn Orientale, 459 †
Soudan Français, par G. Vasco, 227 †
Südsee: *see* Pacific Islands
Suez Canal, Returns of Shipping and Tonnage, 336 †
Sugar Question, Statistical Aspect of the, by G. Martineau, 346 †
Sujbulak, Lake Urmi region, 520
Suk tribe and country, Central Africa, 132
Sulitelma und Ålmajalos, Gletscher von, von J. Westman, 676 †
Sumao, trade at, 391
Sumatra—
Hausbau . . . den Battakern in Nordsumatra, von Dr. W. Volz, 335 †
Sunigram, ruins near, 661
Supan, Dr. A., Allgemeine Erdkunde als Anhang zur Deutschen Schulgeographie, 690 †; Die Bodenformen des Weltmeeres, 688 †; Die Hauptergebnisse der deutschen Tiefsee-Expedition, 231 †
Surface waters of the Ocean, temperature of the, 42
Suriname, Kaart van, door W. L. Loth, 590
Sverdrup, Captain, expedition in Greenland, 448, 571
"Swatch of no ground," Ganges mouth, 410
Swatow, Trade of (Foreign Office Rep.), 457 †
Swaziland—
Geology of, by Prof. R. Jones, 118 †
Sweden—
Maps: Sveriges Geologiska Undersökning, 348
Observations Météorologiques Suédoises, 578 †
Pression atmosphérique moyenne en Suède, par H. E. Hamberg, 676 †
Svenska Turistföreningens Årsskrift, 332 †
Trade of Stockholm and the Eastern Coast of Sweden for 1898 (Foreign Office Rep.), 676 †
Urkalkstenarnas topografi och den glaciala erosionen, af A. G. Högbom, 577 †
Swedish Arctic Expedition of 1898, by Prof. Nathorst, 51 *, 155 *; Swedish East Greenland Expedition, by Dr. Nathorst, 534; Swedish Foreland, King Charles Land, 74, 161
Switzerland—
Geographical Documents discovered in, 216
Pluie en Suisse et à Genève, par M. Gautier, 224 †
Switzerland and the Adjacent Portions of Italy, Savoy, and Tyrol, 677 †
Sykes, Captain, award to, 104
Sykes, Mark, Narrative of a Journey east of Jebel ed-Druse, 116 †
Symons, G. J., Extremes of Temperature in London, etc., 113 †; and H. S. Wallis, British Rainfall, 678 †
Syria—
Narrative of a Journey east of Jebel ed-Druse, by Mark Sykes, 116 †
Nuova Carta della regione ad Oriente del Mar Morto, del P. Manfredi, 116 †
Trade of Beirut and Coast of (Foreign Office Rep.), 582 †
Széchenyi, Graf, Reise des, in Ostasien, 114 †

T.

Tabriz, Persia, 515
Taganrog and District, Trade of (Foreign Office Rep.), 577 †
Tahiti—
Tahitier unter französischer Herrschaft, 342 †
Taku inlet, Alaska, 531
Talara, Peru, cable fractures at, 398
Tamerlan, Excursion à la capitale de, par E. Gallois, 116 †
Tanganyika, Lake, German steamer for, 566
Tangier and District, Trade of (Foreign Office Rep.), 460 †
Taraba river, Benue, 631
Tarr, Prof. R. S., Physical Geography of New York State, 120 †, 229 †, 584 †
Tasmania, Original Chart of the South and East Coasts of, by J. J. Shillinglaw, 686 †
Tatawa Chai, Lake Urmi region, 507, 519, 520
Tate, G. P., Photographs of British Baluchistan, etc., 352
Tatra—
Orometrie der Hohen Tátra, von Ed. Loysch, 576 †
Ta Ya-Ku, Shan States, 386, 387
Taylor, B., Sea-Power and Sea-Carriage, 346 †
Taylor, C. M., The British Isles through an Opera Glass, 677; Vacation Days in Hawaii and Japan, 125 †
Taylor, Miss E., Up the Mackenzie River to the Polar Sea, 119 †
Tea trade and districts in the Shan States, 388
Teheran-Kum road to Ahwaz, 92
Tell-es-Sáfi and Tell Zakariya, Reports on Excavations at, by F. J. Bliss, 582 †
Tell Zakariya, First Report on the Excavations at, by F. J. Bliss, 116 †, 226 †
Temperature—
British Mountain-tops, Minima of Temperature on, 315
Floor of the Ocean, On the Temperature of the, by Sir John Murray, 34 *
Lage der Isotherme von 0° C., von E. v. Edvi, 233 †
Mean temperatures of the Antarctic, 417

Temperature—*continued.*
Zusammenhang der Temperatur, von L. Satke, 345 †
Temple, Sir R., The Strategic Relation of Persia to British Interests, 581 †
Terrestrial Magnetism—
Assumed Normal Magnetization, by L. A. Bauer, 234 †
Comparing and reducing Magnetic Observations, 345 †
Elemente des Erdmagnetismus, etc., von Dr. Fritsche, 345 †
Erdmagnetischen Inklination und ihrer Variationen, von H. Wild, 346 †
Erdmagnetischen Störungen an Polarstationen, von Dr. Lüdeling, 346 †
Is the Principal Source of the Secular Variation of the Earth's Magnetism within or without the Earth's Crust? by L. A. Bauer, 234 †
Is there a 428 Day Period in Terrestrial Magnetism? by J. F. Hayford, 234 †
Probleme des Erdmagnetismus, etc., von M. Eschenhagen, 588 †
Secondary Magnetic Field of the Earth, by A. W. Rücker, 588 †
Secular Change in the Direction of the Terrestrial Magnetic Field, by G. W. Littlehales, 688 †
Sull' influenza . . . della componente orizzontale del magnetismo terrestre, del G. Bellagamba, 588 †
Vertical Earth-Air Electric Currents, by L. A. Baur, 588 †
Tertenia, Central Africa, 140
Tetzner, Dr., Die Philipponen in Ost-Preussen, 577 †
Thacher, J. B., The Cabotian Discovery, 235 †
Thermometer scales, Uniformity in, 544
Thesleff, A., Zigenarnes utbredning i Finland, 332
Thirring, Dr., Die Bevölkerungsverhältnisse der ungarischen Städte, 223 †; Statistisches Jahrbuch . . . Budapest, 111 †
Thompson, D. W., On a supposed Resemblance between the Marine Faunas of the Arctic and Antarctic, 588 †
Thomson, John, Through China with a Camera, 114 †
Thomson, Joseph, the late, Geology of Southern Morocco and the Atlas Mountains, 337 †
Thorndike-Nourse, M., Les valli de la Vénétie, 455 †
Thoroddsen, Dr., Explorations in Iceland, 331 †; Høglandet ved Langjökull paa Island Rejseberetning, 454 †
Thoulet, J., Carte bathymétrique de l'archipel des Açores, 329 †; Considérations relatives à la construction d'une carte lithologique des côtes de France 453 †, 692
Thuringia—
Maps: Geologische Spezialkarte von, 692
Thurston, E., Madras Government Museum, Anthropology, 579 †
Thury, C. de, Projet de jonction géodésique entre la France et l'Italie, 222 †
Tian Shan, Morphology of the, Dr. Friederichsen's study of the, 443, 661
Tibet—
Derniers Voyages dans le Tibet Oriental, par MM. Bonin et Grenard, 457 †
Eastern, M. Rijnhart's journey in, 205
Road Report of Route across Tibet and China, by Captain Wellby and Lieut. Malcolm, 457 †
Voyage de M. et Mme., Rijnhart dans le Tibet oriental, par F. Grenard, 114 †
Tidal Observations round the Coast of England and Wales, 571
Tides simply explained, The, by Rev. J. H. Moxly, 123 †
Tientsin, par P. Bure, 579 †
Tierra del Fuego, 248, 249; mountain of, 29, 30
Tietkens, W. H., remarks on Central Australia, 463 †
Tilmant, V., Mémoire contre la division decimale du cercle, 122 †
Timber Line, The, by H. Gannett, 229 †
Timbo, Futa Jallon, 664
Time—
Decimal division of Time and Angles, 544
Heure et la Longitude Universelles, par E. Cugnin, 586 †
Sur la mesure absolue du temps, par G. Lippmann, 344 †
Unificazione del calendario, Una discussione su l', par M. Rajna, 586 †
Timur-Dera-Kul, Bokhara, 600
Tippenhauer, L. G., Geologische Studien in Haïti, 230 †
Tirah and the Bazar Valley, On the Geology of, by H. H. Hayden, 579 †
Titicaca, Lake, South America, 14
Tocantins et Xingú, Voyage entre, par H. Coudreau, 230 †
Togo—
Études sur les Colonies Allemandes, I. Togo, par H. Hauser, 460 †
Harmattanphänomen im, Ueber das, 227 †, 460 †
Togo im Jahre 1897-98, von H. Seidel, 337 †
Tomsk, Das gouvernement, von P. Romanow, 116 †
Tonga, Trade of (Foreign Office Rep.), 586 †
Tordenskjold, Mount, King Charles Land, 163, 164
Tornow, Max L., The Economic Condition of the Philippines, 116 †
Toro, Visits to Ruwenzori, by Rev. A. R. Tucker, 680 †
Torres Straits and Sarawak, Cambridge Anthropological Expedition to, 302
Tottie, C. D., Om fortgången af Europas allmänna topografiska kartarbeten, 452 †

Trafal, Lake, Patagonia, 365
Trampler, R., Das Holsteiner Thal, 576 †
Trans-Baikal, The, by H. Havelock, 582 †
Transcaspian Desert, The, 582 †
Transkaspien, Reiseskizzen aus, von G. Boehm, 336 †
Trans-Siberian Railway, by Lieut.-Colonel Waters, 116 †; ditto, by W. Durban, 680 †; at Lake Baikal, 317
Transvaal—
  Le Transvaal, par C. Guy, 228
  Maps: Johnston's Map of, and Surrounding Countries, 469; South African Republic, by E. Stanford, 349; South African Republic, The, by Africanus, 682 †
Transylvania, Photographs of, by Dr. Lóczy, 592
Travellers, Health Exhibition for, 671
Triangulation, Earliest, Vienna the Site of the, Herr S. Wellisch on, 203; Triangulations for road surveying in British East Africa, 284–289
Trinidad—
  Oceanic Deposits of, by Harrison and Jukes-Brown, 342 †
  Trinidad, its Capabilities and Products, by Sir W. Robinson, 342 †
Tripoli, Trade of (Foreign Office Rep.), 583 †
Tronador, Mount, Andes, 363, 364
Tropics—
  Siedelung in den Tropen, von G. Meinecke, 466 †
Truck, S., Der Jäderin'sche Basis, 232 †
True, Dr., The Scientific Study of Irrigation, 589 †
Tsinan-fu city, Shantung, 207
Tung-ting lake, 640
Tunis—
  La Tunisie, par M. Dubois, 228 †
  Trade and General Progress in (Foreign Office Rep.), 583 †
  Trebbiatrice guernita . . . nella Tunisia, del Prof. Giglioli, 338 †
Tunisia—
  And the Modern Barbary Pirates, by H. Vivien, 682 †
  Bizerte et Ferryville, 682 †
Turkana tribe, 319
Turkestan and Tibet, Ethnography of, 91
Turkwell river, Central Africa, 149, 151
Turley, R. T., Through the Hun Kiang Gorges, etc., 292 *
Turtles, The Geographical Distribution of, by Dr. J. Palacky, 123 †
Tyndall, J., Hours of Exercise in the Alps, 109 †
Tyndall, Lake, Patagonia, 256
Typhoons—
  Die Taifune vom Sept. 1897, von Dr. Bergholz, 114 †
Tyrrell, J. B., Natural Resources of the Barren Lands of Canada, 119 †

U.

Udden, J. A., The Mechanical Composition of Wind Deposits, 234 †; note on, 215
Uganda—
  From the Punjab Frontiers to, by Lieut. Vaughan, 119 †
  Journeys to the North of, by Colonel Macdonald, 129 *, 681 †
  Mombasa-Victoria (Uganda) Railway Committee, Report by the, 583 †
  Papers relating to Events in the Uganda Protectorate, 119 †
  Railway, Report on the, by Sir G. Molesworth, 209, 338 †
  Uganda Protectorate and its Relation to the Sudan, by H. R. Fox Bourne, 119 †
Uhlig, Dr. K., Die Veränderungen der Volksdichte im nördlichen Baden, 222 †; note on, 89
Ukerewe island, Victoria Nyanza, 321
Ulloa, Señor, on the first discovery of the Madre de Dios, 447
Under the African Sun, by W. J. Ansorge, 117 †
United Kingdom—
  British Isles through an Opera Glass, by C. M. Taylor, 677 †
  British Rainfall, 1898, by G. J. Symons and H. S. Wallis, 678 †
  British Scenery, Development of, by J. E. Marr, 333 †
  Coal Supplies, Our, by T. F. Brown, 113 †
  Commercial Geography of the British Isles, by A. J. Herbertson, 677 †
  Erratic Blocks of the British Isles, 332 †
  Ethnographical Survey of the United Kingdom, 332 †
  Imports, Excess of, by Sir R. Giffen, 113 †
  London Topographical Society, Report of the Organizing Committee, 677 †
  Meteorological Council, Report of the, 333 †
  Meteorological Observations at Stations of the Second Order, 224 †
  Mines and Quarries, General Report and Statistics, 333 †
  Photographs of Geological Interest in the United Kingdom, 332 †
  Pressure, Winds and Rainfall over the British Islands, by A. J. Herbertson, 579 †
  Thorough Guide Series: The Peak District of Derbyshire and Neighbouring Counties, 677 †
United States—
  Agriculture, Department of, Yearbook, 339 †
  Army, Annual Report of the Major-General of the, 683 †
  Census, Twelfth, 322
  Coast and Geodetic Survey, Magnetic Work of the, by L. A. Bauer, 461 †

United States—*continued.*
Diamond Field of the Great Lakes, by W. H. Hobbs, 461 †
Eastern Gateway of the, by Prof. Brigham, 340 †
États-Unis d'Amérique et leur extension en 1899, par P. Barré, 461 †
Geological Survey, Annual Report of the, 339 †, 683 †; Fossil Medusæ, by C. D. Walcott, 229 †
Hydrographic Charts, 128, 239, 469
Interior, Department of the, Annual Reports of the, 339 †
Irrigation, Reservoirs for, by J. D. Schuyler, 340 †
Jared Sparks and Alexis de Tocqueville, by H. B. Adams, 340 †
Magnetic Survey of the, by Dr. H. S. Pritchett, 339 †
Mineral Resources of the, Annual Report, 340 †
National Museum, Report of the, 229 †
Naval Observatory, Report of the Superintendent, 340 †
Original Territory of the, by Hon. D. Hill, 120 †
Public Domain of the, by Max West, 341 †
Stream measurements, Report of progress of, by A. P. Davis, 341 †
Timber Line, The, by H. Gannett, 229 †
War Department, Annual Reports of the, 461 †
Western, Increase of Aridity in the, Mr. Leiberg on, 212
Ural—
Om de vid syenitbergarter bundna jernmalmerna i östra Ural, af A. G. Högbom, 577 †
Urdu, Ibn Batuta's Travels, translation into, 672
Urmi, Lake, and its Neighbourhood, Contributions to the Geography of, by R. T. Günther, 504 *
Ushant—
Ouessant (Enez Heussa — L'Ile de l'Épouvante), par P. Gruyer, 453 †
Urhba, by W. R. Rickmers, 680 †
Ustun or Arka Tagh, 442

V.

Vacation Days in Hawaii and Japan, by C. M. Taylor, 125 †
Vaksh river, Bokhara, 601, 602
Valais, Contribution à l'éthnographie du, par E. Pitard, 224 †
"Valcavado" early maps, 625
Valley Floors, Grade of, 488; valley Sides, Development of, 494
Valparaiso and District, Trade of (Foreign Office Ann.), 462 †
Vancouver Island, by A. Begg, 583 †
Vancouver's explorations in Alaska, 526, 533
Van den Broeck, E., Phénomène de la Migration, 123 †
Van den Plas, J., Le Mayumbe, 336 †
Van der Kemp, P. H., De teruggave der Nederlandsche factorijen in Hindostan, 225 †
Vannutelli e Citerni, La seconda spedizione Böttego nell', Africa Orientale, 117 †
Vasco da Gama—
Premier Voyage de Vasco da Gama aux Indes, par G. Ceulemans, 235 †
Vasco da Gama, von Dr. F. Hümmerich, 235 †
Vasco da Gama and his Companions, by A. G. Wright, 588 †
Vasco, G., Soudan Français: Le Massacre de la Mission Cazemajou, 227 †
Vasconcellos, S. de, Descripção da Bahia de Todos os Santos, 462 †
Vaughan, Lieut., From the Punjab Frontiers to Uganda, 119 †
Vecqueray, —, Trade of Consular district of Cadiz, 577 †
Venetia—
Valli de la Vénétie, par Thorndike-Nourse, 455 †
Venezuela—
Ludwigs Reisen in Coro, von W. Sievers, 121 †
Photographs of, by Major Paterson, 240
Venezuelan boundary arbitration, 594
Venice—
Ancora della Linea . . . e al territorio Veneto, del Prof. Bertolini, 223 †
Reading List on, by H. Sperry, 331 †
Verde, Cape, Submarine gully off, 395, 401, 402
Vermersch, Dr. A., Le Zuyderzée, 675 †
Verner, Mr., on Lakes of the Kasai basin, 211
Vernon-Harcourt, L. F., The Bruges Ship-Canal, 330 †, 674
Verpent, Les Caveaux de, par M. Galimard, 222 †
Vesuvius: a Note on the Eruption of September, 1898, by T. Anderson, 223 †
Veth, Dr. P. J., Catalogue de la Bibliothèque de, 466 †
Viala, L. F., Considérations économiques sur le Brésil, 121 †
Victoria—
Abstract of the Statistics of, 586 †
Cloud Observations in, by P. Baracchi, 586 †
Victoria Land, Antarctic Regions, 9, 474, 475
Victoria Nyanza—
Geologische Aufbau des deutschen Westufers des, von H. Herrmann, 583 †
Herrmanns, Aufnahme zwischen dem Victoria Nyanza und dem Kagera, 460 †
Vidal-Gormaz, Lake, Patagonia, 361, 364
Viedma, Lake, Patagonia, 262
Viellerobe, A., Hautes régions des Amazones, 342; explorations on the Madre-de-Dios, 214

Vienna the Site of the Earliest Triangulation, Herr S. Wellisch on, 203
Vienna, University of, Festival of the Geographical Association at, 659
Virchow, R., Die Bevölkerung der Philippinen, 335 †; Ueber die ethnologische Stellung der . . . Aegypter, 336 †
Viscachas river, Patagonia, 258
Vivian, H., Tunisia and the Modern Barbary Pirates, 682 †
Vivien de Saint Martin et Schrader, MM., Atlas Universel de Géographie, 239, 349
Vizagapatam, Meteorology of, by W. A. Bion, 115 †; Report . . . of the G. V. Juggarow Observatory, 579 †
Volcanoes of the Aleutian Islands, Mr. Stanley-Brown on, 567
Volz, Dr. W., Hausbau . . . den Battakern in Nordsumatra, 335 †
Von Hauer, Franz R., obituary of, 218
Vosges et le Jura, A travers les, par E. Cantineau, 452 †
Voulet, Captain, expedition in French Sudan, 320
Voulet-Chanoine, Mission, par Cap. Chanoine, 459 †

W.

Wachs, A., Die Etappenstrasse von England nach Indien, 690 †
Wad Medani, Sudan, 208
Wagner, H., Die Grösse der britischen . . . in Hinterindien, 225 †; Geographisches Jahrbuch, 237 †
Wakaramojo, Central Africa, 136
Walcott, C. D., United States Geological Survey, Fossil Medusæ, 229 †
Wallace, T. D., Geological Notes on Strathdearn and the Aviemore Railway, 579 †
Walls y Merino, M., Primer viaje alrededor del mundo por el A. Pigafetta, 688 †
Ward, C. S., Thorough Guide Series, The Eastern Counties, 332 †
Warren, Sir C., The Ancient Standards of Measure in the East, 465 †
Warwickshire, Handbook of, by John Murray, 113 †
Wasave tribe, Central Africa, 134
Washington, Catalogue of Mammals from the Olympic Mountains in, by D. G. Elliot, 684 †
Water-spouts on the Coast of New South Wales, by H. C. Russell, 345 †
Waters, Lieut.-Colonel, The Trans-Siberian Railway, 116 †
Watt, J. A., Notes on the Occurrence of Bismuth Ores in New South Wales, 121 †; Report on the Wyalong Gold-Field, 463 †
Wauters, A. J., La Vingt-Deuxième traversée de l'Afrique Centrale, 226 †
Weather Bureau Officials, Proceedings of the Convention of, edited by J. Berry, 465 †, 587 †
Weatherley, Mr., explorations in the Bangweolo Region, 319, 561
Webster, H., Samoa: Navigators Islands, 464 †
Weddell sea, Antarctic, 477
Weed, W., and L. Pirsson, Geology . . . of the Judith Mountains of Montana, 340 †
Wei-hai-wei: its Value as a Naval Station, 334 †
Weisgerber, Dr., journey in Morocco, 564
Weissenfels, Cape, drift-sand flora of, 167
Wellby, Captain, explorations in the Lake Rudolf Region, 318; and Lieut. Malcolm, Road Report of Route across Tibet and China, 457 †
Wellisch, Herr S., on Vienna the Site of the Earliest Triangulation, 203
Wellman, W., Arctic Expedition of, 326
Weltmeeres, Bodenformen des, von A. Supan, 688 †
West, M., The Public Domain of the United States, 341 †
Westermarck, Prof. E., Finland and the Czar, 112 †
West Indies—
  Admiralty surveys in the, 84
  History of the Islands, etc., by A. K. Fiske, 121 †
  Hurricane of 1898, by Captain Carpenter, 230 †; Correspondence relating to the, 121 †
  Hurricane of, Aug. 1899, by E. B. Garriott, 685 †
Westman, J., Gletscher von Sulitelma und Ålmajalos, 676 †
Westport Harbour in New Zealand, Wave Basin, by T. H. Rawson, 464 †
Weule, Dr. K., Der Afrikanische Pfeil, 680 †
Wharton, Sir W., Report on Admiralty Surveys, 343 †
Wheat—
  Address by Sir W. Crookes, 346 †
  Weizenproduction der Erde, von F. Heiderich, 688 †
White, A. S., The Expansion of Egypt under Anglo-Egyptian Condominium, 681 †
White, R. B., Brief Notes on the Glacial Phenomena of Colombia, 684 †
Whitehead, Ch., a Sketch of the Agriculture of Kent, 677 †
White island, or Giles Land, 170
Whittle, J. L., Egypt after Omdurman, 336 †
Whymper, E., Chamonix and the range of Mont Blanc, 577 †; The Valley of Zermatt and the Matterhorn, 677 †
Wiche's Land, 155; memorandum on, by Sir C. Markham, 177
Wichmann, A., Der Wawani auf Amboina, 225 †
Wieser, F., A. E. v. Nordenskiöld's Periplus, 689 †

Wissenburg, A., Die Wirthschaftsverhältnisse Ostasiens, 114 †
Wilcox, W. D., A certain type of Lake Formation in the Canadian Rocky Mountains, 339 †; Sources of the Saskatchewan, 120 †
Wild, H., Ueber die Bestimmung der erdmagnetischen Inklination, 346 †
Williams, C. J. R., Floods in the Brisbane River, 464 †
Willis, B., Some Coal-fields of Puget Sound, 341 †
Willoughby, H. L., Across the Everglades, 120 †, 212
Willoughby island, Alaska, 529
Wilmot, A., letter from, on the Ancient Ophir, 220
Wilson, M. C., Reading List of Colonial New England, 340 †
Wilson, Sir C. W., remarks on "Road-making and Surveying in British East Africa," 290, 291
Wilts and Dorset, Handbook by J. Murray, 677 †
Wind—
Anenometers, Report on Experiments upon the exposure of, by W. H. Dines and Captain Wilson-Barker, 233 †
Directions in the antarctic, 419
Estimated Wind Force, by Captain Wilson-Barker, 233 †
Mechanical Composition of Wind Deposits, by J. A. Udden, 234 †; note on, 215
Windward, voyage of the, 326; return of the, 448
Wingate, Captain, Recent Journey from Shanghai to Bhamo through Hunan, 639 *
Winkel, Dr. J. te, De Noordnederlandsche tongvallen, 223 †
Winnipegosis, Chez les Sauteux du lac, par R. Geelen, 691 †
Winter Minima on British Mountain Tops, 113 †
Winter Temperature and the Height of the Barometer, Connection between, by W. H. Dines, 233 †
Winton, Sir F. de, remarks on "Road-making and Surveying in British East Africa," 290
With Nature and a Camera, etc., by R. Kearton, 224 †
Wodena, von A. Struck, 224 †
Woodward, Dr. H., remarks on "Explorations in the Bolivian Andes," 32; remarks on "Explorations in Patagonia," 374
Worcester and Bourns, Messrs., A List of the Birds known to inhabit the Philippine Islands, 226 †
Workman, F. B., Ascent of the Biafo Glacier and Hispar Pass, 579 †
Wright, A. J., Vasco da Gama and his companions, 588 †
Wright, Marie R., Picturesque Mexico, 120 †
Wuchow, Trade of (Foreign Office Ann.), 457 †
Wu-nu Shan mountain, 297
Wüstungen im und am Kliekener Luch, von Prof. Weyhe, 577 †
Wyndham, —, Trade of Chicago and District, 584 †

Y.

Yakh-Su valley and district, 602, 603
Yalu trade, 298–300; river, 299
Yang-tse, Haut, La Navigation à Vapeur sur le, par R. Chevalier, 316, 334 †
Yang-tse-kiang, Mouth of the, and Surrounding Country, Map of, by E. de Cholnoky, 349
Yangtse Region, by R. C. Gundry, 678 †
Year-Book of the Scientific Societies, 347 †
Yelcho, Rio, Patagonia, 324
Yellowstone, Piracy of the, by J. P. Goode, 341 †
Yemen, Une excursion au, par Désiré Charnay, 224 †
Yokohama and District, Trade of (Foreign Office Ann.), 580 †
Yola town, Benue region, 630
Yorkshire, Caves and Pot-Holes of, by S. W. Cuttriss, 578 †, 658
Younghusband, Major, The Philippines and Round About, 116 †
Yuan river, 642
Yucatan, Trade of (Foreign Office Ann.), 120 †
Yuen-liang-ho, Shantung, 206
Yunnan—
Chemin de fe français au Yunnan, par C. Madrolle, 457 †

Z.

Zahler, Dr. H., Die Krankheit im Volksglauben des Simmenthals, 578 †
Zambezi, expedition of Major Gibbons to, 93
Zanue hills, Niger Protectorate, 180
Zeilah au Harar, De, par Dr. L. de Castro, 583 †
Zermatt, Valley of, and the Matterhorn, A Guide, by Ed. Whymper, 677 †
Zimmerer, Dr., Der Photocol-Sammel-Atlas, 236 †
Zimmerman, Dr. A., Die Kolonialpolitik Grossbritanniens, 124 †
Zimmerman, M., Résultats des Missions Blondiaux et Eyssérie, 337 †
Zöppritz, Dr., Leitfaden der Kartenentwurfslehre, 122 †
Zulukaffern, Middlebrooks Photographieen aus dem Leben der, 118 †
Zuyderzée, Le, par Dr. A. Vermersch, 675 †
Zweck, Dr. A., Litauen, eine Landes- und Volkskunde, 222 †

INDEX TO MAPS.

ASIA.

Bokhara, Sketch-map of, 696
Chinese Shan States, from drawing by F. W. Carey, 472
Manchuria, Central and Southern, compiled from R. Turley's observations, 352
Shanghai to Bhamo, Route-map from, 643
Urmi Lake Basin, by R. T. Günther, 592

AFRICA.

Bauchi, Kingdom of, Sketch-map of, by P. A. Clive, 178
Benue River, Western district of the, Sketch-map, 696
British East, Road-Making and Surveying in, by Captain Smith, 352
Juba River, Course of, Sketch-map of the, 696
Ngami, Lake, Region of, Sketch-map, 311
Uganda Protectorate, showing routes of Macdonald Expedition, 240

AMERICA.

Alaska, South-Eastern, Glaciers of, 592
Argentina, Southern, Sketch-map of, 352
Argentine-Chilean Boundary, Northern, Sketch-map of, 323
Cordillera Real, West Slope of the, Plane-table Sketch-survey, 128
Port des Francais, North-West America, Plan of, 592

ARCTIC.

Bear Island, from survey by Kjellström and Hamberg, 55
Buchanan Bay, etc., of Grinnell Land, Sketch-map by Lieut. Peary, 592
King Charles Land, Sketch-map, 69–76; Ditto, from a survey by Kjellström and Hamberg, 128
Spitsbergen, showing course of *Antarctic* in 1898..61; Purchas's Map of, 157

GENERAL.

Antarctic Strait, Soundings in, 78
Oceanographical Research, International, Chart showing proposed regions for, 647
Oceans, Bottom and Surface Temperatures of the, Three Maps illustrating, 128
Oceans, Bathymetrical Chart of the, showing "Deeps" according to Sir J. Murray, 472
Sea Bottom, Contour of, two charts of, 472

ILLUSTRATIONS AND DIAGRAMS.

ASIA.

Bokhara—
Balgnan, 597
Barrier, A, 615
Dandushka-Bend, 607
Bokhara—*continued.*
Gorge, A, 609
Hazrat-Ishan, 613
Ruy Dascht, on the Safet-Darya, 604

Bokhara—*continued.*
Safet-Darya, Russian colony of, 605; Safet-Darya valley, 611
Yakh-Su valley and conglomerate mountains, 599; Yahh-Su, Side valley of the, 601
Chinese Shan States—
Manhao, 386
Red river, The great rapid, 380; Red river at Hsiukai, 381
Sumao from the west, 387; South Gate street in Sumao, 392
Suspension bridge over the Ho-ma river, 383; Suspension bridge over the Papien river, 385
Chinese Shan States—*continued.*
Temple near Samao, 389
Tibetans in market at Sumao, 391
Yuan Chiang valley, View of, 379
Urmi, Lake, district—
Ardishai, Main street, 507
Bridge over the Safi Chai, 518
Sunnite tower, Salmao, 509
Tomb of mother or daughter of Hulagu, 519
Urmi, Lake, View of, from Koyun Daghi, 514
Urmi, Plain of, Panoramic view of, 511

AFRICA.

Uganda—
British East, Captain Smith's Triangulation, 281
Karamojo head dress, 145
Kavirondo chief, 139
Lubwa's, Embarkation at, 143
Uganda—*continued.*
Nandi, View in, 135
Solian, Camp at, 147
Station on the Uganda railway, 131
Usoga, View in, 141

AMERICA.

Alaska—
Brady glacier, 533
Johns Hopkins glacier, Panorama of, 527, 529
Lituyu bay, Looking northward of, 531
Muir glacier, Panorama of, 525
Bolivia—
Cacaaca, Mount, from near Milluni mine, 21
Cusanaco mine, Gorge near, 24
Earth pyramids in La Paz valley, 23
Illimani, from near Caimbaya, 25; Illimani and the Pico del Indio, 27; Top of Illimani, 29
Sorata, Mount, from the Puna, 19
Titicaca, Lake, A Balza on, 17
Patagonia—
Araucaria imbricata, Wood of, 371
Argentino, Lake, Western arm of, 253
Belgrano, Lake, Ancient eastern outlet of, 259
Patagonia—*continued.*
Buenos Aires, Lake, Marble islands at the, 265
Continental divide in the glacial deposits of river Viscachas, 247
Cordillera of the Andes, Eastern slope of the, 243; North-west and west of, 257
Fenix, River, 355
Lanin volcano, 367
Las Heras river, Mouth of the, 261; Rapid in the, 263
Mylodon cave near Last Hope inlet, 245
San Martin, Lake, Ancient eastern outlet of, 255
Santa Cruz, River, 251
San Tadeo peninsula, at Lake Nahuel-Huapi, 359
Tronador, Mount, 363
Vidal-Gormaz, Lake, 361
Volcanic tuff at river Limay, 365

ARCTIC.

Bear island, southern extremity, 56; the Burgomaster Gate, 57
Spitsbergen—
Amsterdam Island, Shore of, covered with driftwood, 175
Andrée's balloon house, Remains of, 173
Auk Horn, in Safe Haven, 64
Charles XII. island, 172
Giles Land, or White island, 171
Spitsbergen—*continued.*
Hope island, East side of, 60
King Charles Land, 67–73
Nordenskjöld, Mount, on Swedish Foreland, 161
Sjögren, Mount, from Cape Altmann, 162
Storfjord, Western shore of the, 62
Tordenskjöld, Mount, from Cape Altmann, 163

ANTARCTIC.

Antarctic strait and soundings in the pack, 78, 79; method of sounding, 80
Barometric pressure diagrams, Figs. 1–3, 414–416

GENERAL.

Beatus Maps, Pedigree of the, 624
Geographical Cycle, Figs. 1–3 illustrating the, 486, 492, 494
Submarine gullies, etc.—
Fosse de Cap Breton, 405, 406
Garonne, Subterranean course of the, 407
Lines of soundings from Cape Verde, 396
Submarine gullies, etc.—*continued.*
Profile sections across gully at Cape Verde, 399
Rovuma bay, Soundings, 397
Salinas landing, Contour of sea-bottom, 411
Section to true scale across gully, 400
"Swatch of No Ground," 410

END OF VOL. XIV.

PRINTED BY WILLIAM CLOWES AND SONS, LIMITED, LONDON AND BECCLES.